This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

THE UNIVERSITY OF MICHIGAN · LIBRARIES ·
THE UNIVERSITY OF MICHIGAN
ARTES SCIENTIA VERITAS
1817

THOMAS CURSON HANSARD,

Æ. XLVIII.—1824.

18601

TYPOGRAPHIA:

AN HISTORICAL SKETCH

OF

THE ORIGIN AND PROGRESS OF

THE ART OF PRINTING;

WITH

PRACTICAL DIRECTIONS FOR CONDUCTING
EVERY DEPARTMENT IN AN OFFICE:

WITH A DESCRIPTION OF

STEREOTYPE AND LITHOGRAPHY.

ILLUSTRATED BY

Engravings, Biographical Notices, and Portraits.

BY T. C. HANSARD.

PRINTED FOR
BALDWIN, CRADOCK, AND JOY: LONDON.
1825.

Z
124
.H25

T. C. Hansard, Pater-noster-row Press.

Received 2-4-39 EIH

ENGRAVINGS IN THIS WORK.

[*With Directions to the Binder.*]

FRONTISPIECE:—Portrait of the AUTHOR.

Inscriptions (fac-simile) on the Babylonian Bricks ... *Is in page* 5

Reduced view of the Brick, and the Inscription 7

The Babylonian Cylinder 9

Inscription of the Sigean Tablet 13

To face p.

Specimen of Chinese printing 17

N.B. These two leaves are to be folded back to back, and fastened in the volume by the cut edges; the folded edge remaining outside and uncut.

Fac-simile of the Biblia Pauperum } 33
Fac-simile of the Speculum Salutis }

Portrait of GUTENBERG 49

Portrait of KOSTER 49

Stationers' Hall—Ancient and Modern, and Antique Seal of the Company 237

Stationers' Hall—Antique carved Oak Screen at the entrance to the Hall 240

Portrait of BASKERVILLE 310

BOWYER I. 324

BOWYER II. 326

NICHOLS 328

CASLON I. 348

CASLON III. 354

WILSON (of Glasgow) 362

BULMER 609

RITCHIE 611

Compositor's Frame, Cases, and other Apparatus for that department of Printing—Various Engravings ... *Are in pages* 408, 449, 483, &c.

Apparatus for casting Inking Rollers—Figures of the Rollers, Ink-Tables, &c. ... ... 625 to 635

The Printing Press of the original construction 416

Twenty-six figures of the various parts of the same ... ... 452, &c.

The same Press with the application of the additional power 417

Two figures of the various parts 648

The Printing Press of the STANHOPE construction 637

The RUTHVEN Press 651

The COGGER Press 655

LIST OF ENGRAVINGS, &c.

		To face p.
Mr. Stafford's portable Press / Mr. Rutt's Printing Machine	... ...	696
Section of a Steam-engine Printing Machine ...	*Is in page* 692	
View of Mr. Bensley's Machine		696
The Columbian Press	655	
The Treadwell Press (three figures)	659—660	
Hansard's Patent Tympans	685	
The Nay-Peer Printing Machine		710
Wrongly stated in page 710 as Frontispiece to this work.		
Engraved Plate of Typographic correcting marks		744
Apparatus for Stereotype casting	862—865	
View of a Stereotype Foundry	871	
The Lithographic Star Press	903	
The Initial Letter of the First Psalm in the Mentz Bible (in colours)		913
Devices of Early English Printers (four pages) ...	*Appendix*	921
Scale of ms referred to in page 461 (engraved plate)		924
Typographic Calculator, to follow Scale of ms.		
Exemplification of different Inks.		

PREFACE.

THIS WORK is partly formed upon the basis of the "PRINTER'S GRAMMAR" published some years ago by Mr. Stower. His, being the latest, was, so far, the book which contained the most information on the practice of Printing, up to the time of its publication. But the great alterations and improvements in conducting the various operations of this art, as well as the rapid increase of its members during the seventeen years since the appearance of that work, have rendered a new one on the subject highly requisite. The present volume is, therefore, intended not only to supply that of Mr. Stower, but to include the choicest portions of every prior publication which has appeared in our language relative to printing; with an account of all the improvements and novelties which have been introduced into the profession up to the present period.

Although it is no part of my pretensions to offer to the experienced printer instructions for the conduct of his business; yet, besides the introduction of much original matter relative to the main subject; besides touching upon all the material points that lead from its dim origin to the state of perfection at which the art has in this age arrived (and all which, it is presumed, is calculated to interest every reader); it has certainly been a principal part of my endeavour, to inform the young practitioner, as well as the amateur of typography, as to the most approved modes of conducting the several branches that appertain to this important business, with whatever else my experience and observation could suggest

as practically useful. I have also, in the course of the work, made ample reference to such patents, privileges, grants, charters, statutes, and decrees, as seem to have impeded, or accelerated, or in any other manner influenced, the progress of the Press.

It will be observed, that this work is written partly in the first person singular, and partly in the first person plural. I found it impossible, without either re-writing the whole of the parts taken from Stower, or adopting his style, to avoid this apparent inconsistency, and I had no leisure for the one, nor inclination for the other; but it may answer this purpose, namely, that whatever has been retained verbatim from Stower will be known by the plural, WE, the whole of his book being so written—wherever I have written new matter, or so altered his as to subject it to original responsibility, I have (perhaps more consistently) placed myself in the singular person.

It has been my object, as far as circumstances and the nature of my work enabled me, to make it acceptable, generally, to men of letters, and essentially so to members of the art: and although the number of illustrations and embellishments which I have added, must unavoidably enhance the cost of the book, yet, I trust the purpose intended thereby, if happily effected, will sufficiently justify the extra charge, and exonerate me from any responsibility on the ground of its having been unnecessarily augmented; and that no purchaser will complain of the introduction of things irrelevant, or not intimately connected with the main subject of the volume. Imperfections, after all, will certainly be found: and I do not so much wish them to be overlooked, as to have the entire work examined with candour, and improved by friendly suggestion.

For the notices of our early founders and founderies, I acknowledge myself indebted to a rare and curious work by the late Reverend Edward Rowe Mores, A.M. and A.S.S.

published in 1778, intitled "A Dissertation upon English Typographical Founders and Founderies." This work appeared to me so very interesting in itself, and so necessary an auxiliary to the study of Typographical History, that I had, at one time, an intention of offering the Profession and Amateurs a reprint of it, with a view to continue the History of English Type-founding down to the present time. But I found that circumstances had placed the work, as honorary copyright, in the hands of one far more qualified for the task. I have, therefore, for the present, relinquished the idea; but the additional information which I have been collecting upon the subject, will, at any time, I flatter myself, be useful and valuable as an appendage to a new edition of that work.

I have been favoured, by a friend, with an unpublished Manuscript of the Printer's most illustrious and liberal benefactor, the late Earl Stanhope,* relative to printing;

* Charles Stanhope, third Earl Stanhope, was born in the year 1753. His grandfather, and his father, were both of them warmly attached to the Whig party, and, on all occasions, constantly supported the liberal side of all public questions. The subject of this memoir was sent very young to Eton College, from which he was removed at the age of ten, for the purpose of accompanying his father's family to Geneva, in which place the elder son soon died. Charles was now left to assume the title of Viscount Mahon; and in this state he passed ten years in that city, where his education was chiefly conducted under the inspection of M. le Sage, well known as the author of a theory of gravity, and of various tracts connected with mineralogy, chemistry, and other departments of natural philosophy. During the young nobleman's residence in Switzerland, he made a considerable progress in scientific pursuits; and while still resident in Geneva, he obtained a prize from the Society of Arts and Sciences at Stockholm, for the best Essay on the Structure of the Pendulum.

Although Lord Stanhope was chiefly known by his contemporaries as a politician, it is rather as a philosopher that he has made himself generally known to the world. Of his works which relate to a strictly scientific object, his treatise on electricity seems to stand first, in which he endeavours to establish some new principles respecting the electric fluid. In this piece he attempts to prove the existence, and to explain the effect, of what he

in which he minutely describes, as far as the Manuscript is completed, several of the new inventions and processes be-

---

calls the *returning stroke*, namely, an action induced at a considerable distance from the principal discharge, depending upon the tendency of the fluid to equalize itself in all bodies. Since the publication of this hypothesis, some accidents from lightning have occurred, which seem the best accounted for by it, and which indeed cannot be easily explained upon any other principle. In this treatise, the great object of practical utility is not neglected: the best method of preserving buildings from the effects of lightning is minutely considered, and exact directions are laid down for accomplishing this purpose.

Another object of great practical utility was, the means of preserving buildings from fire. This object he endeavoured to accomplish by practising the simple and well-known expedient, that combustion can never take place where the air is excluded. To illustrate this principle, and, at the same time, to bring the fact to the test of very ample experiment, he caused to be erected a wooden house rendered fire-proof, and, after filling the lower chamber with a collection of very inflammable materials, he set fire to it. The result was, that, during the burning, a number of persons of distinction who were present in the upper apartment, sat without any inconvenience in the same. An account of these experiments was published in the Phil. Trans. for 1778.

Another object which engrossed a considerable share of Lord Stanhope's attention was, the employment of steam for the propulsion of vessels. For a period of 20 years he continued his experiments, and is said to have spent large sums of money in prosecuting them. In the meantime, Mr. Fulton had the same object in view; and, although it is known that they both, at one period, frequently conversed on the topic of steam-vessels, it is probable that no documents exist which can decide on the share which each of them had in this curious invention.

His Lordship also published a pamphlet on the means of preventing frauds on the gold coin; and afterwards, on bank-notes; in both cases proceeding upon the obvious principle of employing very skilful workmen, whose performances could not be imitated by those who engage in attempts at forgery. He is further well known for having suggested some important improvements in the construction of the printing-press, by which a single stroke upon the center of the machine, is rendered equal to one of double the force at each end.

Lord Stanhope would never suffer any of his improvements in printing to become subjects of patent or monopoly. So extremely anxious was he upon this subject, that, whenever he had any thing new in hand, which he

longing to the art, written, as he therein says, with a view of giving to the Public a clear and distinct description of his new Iron Printing Press; the state of perfection which Stereotype Printing had attained under his direction; and of pointing out some other matters, by which he was persuaded the Art of Printing might be still further improved.

I have gladly availed myself of the contents of this Manuscript for such descriptions as appeared suitable to any particular subjects on which I had to treat in the present work. Indeed, such is my veneration for the authority of Lord Stanhope on whatever relates to typography, that, in several instances, I have erased my own descriptions to substitute the language of his Lordship. In every such case, I have acknowledged the obligation by distinctly marking the passages.

Moxon's "Mechanical Exercises" is a curious and scarce book. It was published about the year 1686, in twenty-four numbers, which form a small 4to volume. It treats of the Art of Typography *in its whole extent*, as practised by the fathers of printing: that is—it describes the preliminary arts of punch-cutting, matrice-making, and type-casting. I have never been able to meet with more than two copies of this work—one, in the Library of the British Museum—the other, in the Library of the Society of Arts.

Moxon published also a treatise more expressly appertaining to the Art of Printing, intitled *Regulæ Trium Ordinum Literarum Typographicarum*, in which he attempts

---

found likely to succeed, his first step was, to take the precaution of entering a notice or caveat at the Patent Office, to prevent any one else taking advantage of his ideas, and obtaining a patent. These caveats he regularly renewed at the end of the limited period.

Lord Stanhope died in December 1816, in the 64th year of his age, exhibiting in the last scene of his life an uncommon degree of philosophical resignation.

to lay down Mathematical Rules for the formation of Roman, Italic, and Black Alphabets. But his science does not seem to have led him to any improvement in the shape; for the characters he formed are nearly allied to the ugly Elzevirs of the seventeenth century.

Luckombe compiled his book from three sources; namely, Ames's "Typographical Antiquities,"* for the Historical part—Smith's "Printer's Grammar," for the Practical part of the Composing department—and Moxon's "Mechanical Exercises," for the Press-work. The engravings of the press, and all the several dissected parts, are fac-similes of those in the last-mentioned work. The Frontispiece, which Luckombe gave as a likeness of Gutenberg, is copied from Moxon, but with the *trifling* mistake of substituting the portrait of one person for another. Moxon gives the likeness, which Luckombe has put forth for Gutenberg, as "The true effigies of Laurentz Jans Koster, delineated from his monumental stone statue erected at Haerlem;" and in another plate he gives "The true effigies of John Guttemberg, delineated from the original paintings at Mentz in Germanie." In the present work will be found copies of both these portraits.

The first work I meet with, printed in England, expressly for the use of the profession, is Smith's "Printer's Grammar," 1755. Luckombe's "History and Art of Printing" followed in 1770. Stower's "Printer's Grammar," in 1808.—Stower says, that Smith's work was

* Joseph Ames was born at Yarmouth, January 23rd, 1688-9. At his father's death he was about twelve years old, being then at a school in Wapping. He was brought up to trade, and settled near the Hermitage, Wapping, as a ship-chandler, or ironmonger. He very early discovered a taste for English History and Antiquities. He was twenty-five years in collecting and arranging his materials; and published his "Typographical Antiquities" in 1749. He died October 7th, 1759, aged 71. He was many years Fellow of the Royal and Antiquarian Societies: and Secretary to the latter.

the foundation of his. It is very clear to me that Luckombe made free use of his predecessor as far as he went: for, upon a close comparison, much of Luckombe will be found to be plagiarised from Smith, altered a little in arrangement and phraseology; and that, in his turn, Stower copied from Luckombe.

Smith, from his own acknowledgment, appears to have compiled his book under very adverse circumstances, and solely with a view to relieve himself from his embarrassments. It is plain that he only went half-way through with his design, since his volume treats only upon the business of a compositor, omitting all that relates to the completion of printing; never mentioning press or pressman. It may, however, as far as it goes, be called a tolerably good practical book, although it is badly arranged. Luckombe copying, as before observed, much from his predecessor, produced a more complete work on the Art, and which embraced at the same time considerable portions of history and science. That part of it in which "The Origin of Printing" is discussed, does not extend to any practice that preceded the invention of printing by moveable cast type. "The Historical part," he says, "is collected from the ingenious Mr. Moxon, and other able writers on this noble art—to the publication of the late industrious antiquary, Mr. Ames"—and to some other writers whom he mentions he acknowledges himself also indebted.* His research concerning "The Introduction of the Art into England," is the most satisfactory of any to be met with; in proof of which, it may be seen that every subsequent writer on the subject has either copied his work, or quoted, by his means, the same authorities which he had consulted; but with this difference—they have omitted many parts, which, to me, as a printer studying the history of his profession, appear the most in-

* P. iii.

teresting. This will serve to account for my having inserted the whole of those parts as supplying their deficiency. The Copies of Charters, &c. granted to the Stationers' Company, are, in considering the progress of printing, highly interesting.—The List of Printers abroad and in this country—and the Prefaces and Dedications of the earliest printed books, as transmitted by this author, are curious and instructive, and well worth preservation. Luckombe's is now becoming a scarce book, and I, therefore, take pleasure and pride in handing down the choicest parts of his labours one step further in posterity, nearly as he gave them.

The labours of Ames have greatly assisted all later writers upon Typographic history: some, as far as served the purpose of their particular arguments; and others, as far as the room allotted to their inquiry would allow; but they have generally availed themselves of what Luckombe had quoted from his precursor. Indeed, it is allowed by very able judges, that Luckombe compiled in the most judicious and careful manner; and his selections from Ames's History, in particular, have been made with so much judgment, that to give any thing less than what he has quoted, would be doing injustice to the learned historian, whose industry and ability have preserved from oblivion a volume of facts which will never cease to be esteemed by every admirer of the art.

But those who desire to be fully acquainted with the History of Printing must consult the Bibliographical labours throughout, of Ames, Herbert, Palmer, Dibdin, Nichols, and Horne:—but above all, DIBDIN. This Colossus in Bibliography, seems to have bestrid the Typographic world with well-merited and conscious superiority; while we, humble artist-book-makers, must be content to seek our honours by plucking leaves and sprigs from his exuberant foliage. Without the assistance of his works,

HORNE would have wanted much: without HORNE, the Typographic lore of *Hansard* would have been very meagre; and without the rich dessert supplied by NICHOLS, he would hardly have succeeded in making his entertainment acceptable, which now, he trusts, with the *cullings* he has thus obtained, he shall not have laboured in vain to do.

A printer cannot possess treasures more choice than Dibdin's "Bibliographical Decameron," "Typographical Antiquities," and other works of general information upon those branches of art connected with the typographic profession. The never-failing stream of amusement which these fountains are capable of affording, will always be found a welcome relief to any mind fatigued with the constant attention required in conducting the business of a printer. His anecdotes of eminent living masters of this art, are calculated to act as a stimulus to professional emulation; and the minds of the more juvenile members of the profession can hardly fail to be inspired by his writings with a disposition to excel, and to the consequent endeavours to acquire distinction amongst the competitors in this theatre for the exercise of genius, and the establishment of an honourable fame.

It would have afforded me the highest gratification to have been able to give, in this work, authentic portraits of the immortal Caxton, and his worthy successor Wynkyn de Worde; but after every search within my reach having proved fruitless, I have been induced, alike by books and the opinion of friends, to believe that if I copied any that have hitherto been given, I should only be lending myself consciously to the propagation of spurious portraits of these first English printers.

"Fancy," says Mr. Dibdin [Typ. Antiq. i. cxxviii], "is seldom backward in supplying what Truth has denied: accordingly, a portrait of BURCHIELLO, the Italian poet, from a small 8vo edition of his work on Tuscan poetry, of

the date of 1554, was inaccurately copied by Faithorn, for Sir Hans Sloane, as the portrait of Caxton. Lewis, however, was resolved to improve upon the ingenuity of his predecessor, by adding a thick beard to Burchiello's chin, and otherwise altering his character; and in this form the Italian poet made his appearance upon copper as CAXTON, prefixed to the Life of our Printer. This portrait afterwards served for the works of Ames and Herbert; not, however, before a miniature copy of it had graced the Frontispiece of Marchand's Histoire de l'Imprimerie."

"His pupil and successor, Wynkyn de Worde," says the same author, "has shared a similar fate." The portrait given of him is that of Joachim Ringelberg, of Antwerp, a commentator and critic. Mr. Dibdin has "a tiny duodecimo volume," containing this portrait, encircled by the inscription IOACHIMVS RINGELBERGIVS ANTVERPIANVS, and formed into the square of a page by allegorical devices emblematical of the studies of the original.—*Decam.* ii. 289.

The portrait of Richard Pynson, as represented by Ames and Herbert, is also fictitious; being unequivocally that of Gorræus, an eminent physician of about two centuries ago. Mr. Dibdin is of opinion that the portraits of Richard Grafton and John Day may be considered as the earliest authenticated likenesses of English printers.

The triple profile of "the grand typographical triumvirate,"* Gutenberg, Fust, and Schoeffer, has been taken from French authority. I have not met with any other to corroborate it.

Of the more modern portraits something remains to be said; and particularly of that of Baskerville.

It has been hitherto supposed that no likeness is extant of this first promoter of Fine Printing, and author of various improvements in the Typographic Art, as well as

* Dibdin.

in the arts connected with it. At the time when I was collecting information for that part of my Work in which Mr. Baskerville is particularly mentioned [see p. 310, et seq. and chap. viii.] I thought it a good opportunity to make inquiry, at Birmingham, whether any Portrait or Likeness of him remained; for a long time the inquiry was constantly answered in the negative; but at last it occurred to a friend to make a search among the family of the late Mrs. Baskerville, and he was successful.

Mr. Baskerville married the widow of a Mr. Eaves, her maiden name was Ruston. She had two children by her former husband, a son and daughter, the latter married her first cousin, Mr. Josiah Ruston, formerly a respectable druggist at Birmingham; and she survived her husband.

At the sale of some effects after her decease, Portraits of her mother and her father-in-law, Mr. Baskerville, were purchased by Mr. Knott of Birmingham. Some of Mr. Ruston's family and friends, who are still living, consider this likeness of Mr. Baskerville as a most excellent and faithful resemblance. It was taken by one Miller, an artist of considerable eminence, in the latter part of Baskerville's time. The inquiries of my friend Mr. GRAFTON, of Park Grove, near Birmingham, at once brought this Painting into notice; and, at his solicitation Mr. Knott kindly permitted Mr. Raven, of Birmingham, an artist of much celebrity, to copy it for my use and the embellishment of this work; to which I think the united talents of Mr. Craig and Mr. Lee have done ample justice.

The Portrait of the third Caslon was drawn, as well as laid down on the wood for the engraver, by Mr. Craig.

That of Dr. Wilson was taken from a drawing in crayons, obligingly lent me by that worthy gentleman.

That of Mr. Bulmer is from an original, and most excellent drawing, which was taken some few years ago.

That of the Author was drawn by Mr. Todd, R. A.; of

whom it pains me to say, that, although still living, he is in such a state of mind that *the late* might have been not unappropriately prefixed to his name.

That of Ritchie, also by him, was nearly the last work of art which he executed previous to this dreadful affliction.

This ornamental part of the work will be the means of introducing to the public a novelty in the xylographic art, as connected with the typographic; namely, the delineation of subjects in wood-engraving, in a style hitherto unattempted. The manner in which the specimens here presented are executed, has been pronounced, by highly-competent judges, to bespeak a new era in the art of wood-engraving; and if the printing of them shall have done justice to Mr. LEE, the artist by whom they were engraved, and whose unassuming genius seems equal to the execution of any thing that it is in the power of the graver to perform in this branch of art, they will never cease to reflect the highest credit upon his talents. They were delineated, as above observed, upon the blocks by that eminent artist, Mr. W. CRAIG. Of the printing of these engravings, I may perhaps be allowed to say something; although, if the effect produced do not carry with it its own commendation, any thing I can say must be of small consequence. They have been worked by a method entirely new, the result of much thought and experiment. The paper has been made on purpose, and the impressions are now given just as they came out of the machine which printed them, without hot-pressing or any other means to set them off. The other engravings in this work are also done by Lee, excepting those which have appeared before in Stower's Grammar, of the common and Stanhope presses, which are by Branston.

Mr. M^c^Creery much enhanced the value of Stower's book by writing the article on "Fine Printing." His permission to insert the whole of his beautiful poem,

"THE PRESS," in this work, is an additional instance of genuine talent and friendly liberality going hand in hand to promote the cultivation of science and art. His judicious selections from Palmer's "History of Printing," among the notes to his poem, enabled me further to consult and quote that author.

Saint BRIDGET, or, more politely, Saint BRIDE, seems to have been the *Alma Mater* of our profession, upon its first introduction into the metropolis. Wynkyn de Worde, Pynson, Robert Copland, William Rastell, John Boulter, or Butler, Lawrence Andrew, Thomas Berthelet, John Wayland—all dwelt in Fleet-street, and this parish; and after them so many more, that the list becomes too numerous to be proceeded with; but it would be unpardonable to omit the observation that, whereas the first King's Printer, by patent, resided in this parish, so have they all in succession continued the same parochial residence to the present day. The celebrated RICHARDSON, author of Pamela, &c. carried on his first essays as a printer in a court in Fleet-street, and when his concern grew more extensive, he removed into Salisbury-square. This notice of it is written in, probably, the very parlour which he used.

The venerable living father of the profession, JOHN NICHOLS, honoured the list till very lately: and the total number of those carrying on printing in this parish almost defies enumeration; certainly eclipses, in comparison, that of any other parish or circle of similar extent in England, or perhaps the world.

It only remains for me, here, to say, that the Biographical sketches which I have selected, or compiled, will, I hope, be gratifying to many, and, I trust, offensive to none; and that the portraits of well-known friends which have been introduced into a book expressly dedicated to the art, of which some of them have been, and others

still happily remain, honours and ornaments, will be deemed embellishments, of a desirable character, and materially aid that endeavour to make this volume acceptable, which, it is hoped, will be found manifested in the arduous labours of research and arrangement bestowed in the compilation of it.

T. C. Hansard.

TYPOGRAPHIA.

CONTENTS.

PART I.

HISTORY OF THE ART.

HISTORICAL INTRODUCTION.

SECTION I.—p. 1.

THE Origin of Printing considered, unconnected with the idea of making Books: The first step in the Art referred to the Second Age of the World, or that immediately succeeding the Flood: Description of the Printed Bricks of Babylonia, with an Engraving: Opinion of the mode by which the impressions on these Bricks were effected: Of circular pieces that present curious specimens of Clay-printing, with an Engraving: Failure of the learned in their attempts to decypher the contents of these Chaldean Prints: Hypothesis as to the intended use of such mementos: Reasons for concluding the origin of Alphabetic Writing to have been divine: Specimen of the most ancient Alphabetic Writing Extant: Description of a Roman Signet used for Stamping: Concluding Reflection.

SECTION II.—p. 17.

Origin of Printing connected with the idea of forming Books: Division of this subject into Two Periods.

FIRST PERIOD.—Of the invention of symbols or figures, with words, engraved on blocks: Finiguerra: Earliest prints from blocks: Mode of obtaining impressions at that early time: Subsequent stages of block-engraving: Wohlgemuth: Albert Durer: Holbein: Original Specimens of Durer: Chronological view of the Four Grand Steps of the Art: Books of Images with and without text: Description of the "Biblia Pauperum:" Description of the "Speculum Humanæ Salvationis."

SECOND PERIOD.—Moveable Types: Gutenberg: Fust or Faust: Schoeffer: Works executed by these Artists: Claims in favour of Haerlem: Decision in favour of Gutenberg, Schoeffer, and Fust: Brief view of the Rise, Progress, and Diffusion of the Art in Europe in the fifteenth, sixteenth, and seventeenth centuries: Its extension to the East Indies, Tranquebar, Russia, and Africa: Religious Establishments great promoters of the Art: Revival of Greek Literature: First appearance of Newspapers, Magazines, Reviews, Annual Registers, &c.: General Eulogium on the Art by the late Earl of Stanhope.

SECTION III.—p. 67.

The Preface of Luckombe, as taken from Ames's Typographical Antiquities: Books esteemed real Treasures: Cicero's desire to form a Library: Instances of large Sums given for Books: Introduction of Printing: The Downfal of Scribes and Illuminors: Alarms of the Priestcraft: University of Cambridge: Vicar of Croydon: Cardinal Wolsey: Share of Printing in effecting the Reformation: Freedom of the Press: Usefulness of the Art: Introduction into England: Digression on the value of Books before Printing was invented: Opposition of Scribes and Monks. CAXTON. Attempts to rob him of the glory: Refutation of the Arguments against him, and Proofs for him: His Press at Westminster: Sketch of his Life and Character: His Book of the Game of Chess, the first printed in England, 1471: The Dedication: Caxton's Type: Fac Simile: Characteristics of the First Printed Books.

CONTENTS.

SECTION IV.—p. 106.

First Printer in England: Earliest Masters in London: Protecting Statutes, Patents, and Exclusive Privileges: Origin of the existing Patent of King's Printer: Copy of the Patent to Reeves, Eyre, and Strahan: Earliest Printers in OXFORD: CAMBRIDGE: St. Alban's: York: Beverly: Tavistock: Southwark: Canterbury, &c.: SCOTLAND: IRELAND: First Practice of the Art in the most important Cities and Towns on the Continent.

SECTION V—p. 202.

ON PAPER.

Invention of Paper: The Papyrus of Egypt and Italy: Paper made from Cotton: Bark: Chinese (or India) Paper: Linen Rags: General Description of the Method of making Paper by Hand: Machines for making Paper: Reasons for its adoption in England: Injurious Effects to the Journeymen, and to the General Interest of Trade, of their frequent Combinations, particularly exemplified in the Paper Manufacture: Mr. Whatman, his Efforts for the real Improvement of Paper: How counteracted: Didot, Fourdrinier, Dickenson: Chemical Aids: Gypsum: Calculations of Value: Injurious effects of Earthy Substances, and Gas Bleaching: Specimen of what Paper ought to be.

SECTION VI—p. 237.

THE STATIONERS' COMPANY:—Their Antiquity: Their Halls: Description of the present: Its Site: Elevation: Great Room: Court Room: Stock Room: Paintings: Stained Glass: Anecdote of Alfred and the Pilgrim: Escape of Mary, Queen of Scots: Portraits: Government, Charters, Grants, &c. of the Company: Powers formerly exercised by them: Mode of Appointment of Court and Officers: Renter-Wardens: Stock: How rose and divided: Dividends: Widows: Charitable Donations.

SECTION VII—p. 284.

"THE PRESS," Mr. M'Creery's Poem: Annotations by the Editor of this Work, with Biographical Notices of Eminent Printers: Faust: Jenson: Aldus: The Printer's Chapel: Antient Customs of the Printing Office: Baskerville: Bodoni: Bulmer: Bensley: M'Creery: Moxon: Enemies to the Press: Pleasing Digression. ADDENDA: Biographical Notices of the Bowyers: Griffith Jones: John Nichols: Mr. Hughes: Mr. Strahan: The Hansards.

SECTION VIII—p. 332.

ON TYPE-FOUNDING.

The Rev. Mr. Rowe Mores' "Dissertation upon English Typographical Founders and Founderies:" Early Printers Founders also: CAXTON: His Type: Fac-similes not like the Original: WYNKYN DE WORDE: PYNSON: FAQUES: DAY: Those that followed: Separation of Printing and Founding: Star-Chamber Decrees and Regulations for those Trades: Appointed Printers and Founders: Mr. Pitt's Precedent for intimate acquaintance with the Fraternity: Mr. JOSEPH MOXON: His Work on Type-cutting and Casting: University of Oxford Foundry; Bp. Fell's, Junius's, Grover's, Andrews's, James's, John James, Ilive's, CASLONS, I. II. III. IV., JACKSON, Cotterell, FRY, FIGGINS, THORNE, Martin, and many others.—Scotland: WILSON, MILLER, &c.: Properties and Shapes of Types: Type Metal: Of Roman: Of Italic: Old Old English, New Old English, Modern, or Black: Names of Letter: Proportion to each other: Different sizes in England: Founts of Letter as with Letter-founders.

CONTENTS.

PART II.

PRACTICE OF THE ART.

CHAPTER I—p. 405.

General Description of the Apparatus for, and Process of, Moveable-Type Printing.

CHAPTER II—p. 426.

CASE.

Of Compositor's work: Description of a Fount: Upper Case: Lower Case: Capitals: Small Capitals: Accented Letters: Numeral Letters: Figures: Reference Marks: Points: Quadrats: Spaces: Rules: Space-rules: Braces: Superiors: Fractions: Quotations: Two-line Letters: Flowers: Leads, or Space-lines: Greek and Hebrew: Mathematical, Algebraical, and Geometrical sorts: Of Casting-off copy; various methods: Different Scales and Tables: Frame: Cases: Stone: Boards: Furniture: Side-sticks: Gutters: Cast-iron Gutters and Side-sticks: Quoins: Shooting-stick, &c. &c.: Chases: Observations on Composing: Schemes of Cases: Lord Stanhope's plan: Laying of Letter: Distributing: Composing: Composing-stick: Imposing; Schemes of Imposing various sizes of Works: Dressing the Formes and making Margin: Tables of Signatures and Folios: Locking-up: Proofs: Expedition-work: Companionships.

CHAPTER III—p. 548.

THE PRESS.

Construction of the original Printing Press by Blaew of Amsterdam: Perspective and Geometrical Views of every part of the Press: Of Press-work: Practical directions particularly applicable to those Presses: Putting up a Press: Making-ready: Inking: Beating, &c.: Pulling: Wetting Paper: Balls: Rollers: Printing in Red, or other Colours with Black: Mixing and grinding Colours with Varnish: Rules and Remedies for Pressmen.

CHAPTER IV—p. 609.

FINE PRINTING.

Of Fine Printing: Baskerville: Ritchie: Bulmer: Bensley: M'Creery: Bad effects on other Work: Small Type: Various Notions of Fine Printing: Wood-cut Working: Obstacles to Fine-work: Mutation of Taste in the Form of Types: Monstrosities of 1824: Requisite Materials for Fine Printing.

CHAPTER V—p. 622.

INKING APPARATUS.

Apparatus for Inking the Type: Lord Stanhope's attempts unsuccessful: Effected by a peculiar Composition: Forster's Composition Balls and Cylinders: Value to Printing Machines: Ingredients of the Composition: Apparatus for Melting and Casting: Directions for keeping the Balls and Rollers in good order: Effects of the Atmosphere: Applegath and Cowper's Iron Table and Apparatus: Forster's, of Wood: Arding's, of Iron and Wood: Parkin's Inking Apparatus.

CHAPTER VI—p. 637.

IMPROVED MANUAL PRESSES.

Of modern invented or improved Manual Printing Presses: The STANHOPE; Descriptions and Engravings of its various Parts; application of the principle to the old Press: The Ruthven: Presses of Ridley and others: Cogger and Scott: Clymer's Columbian: Stafford: Napier: Treadwell's Treddle: Watts: Barclay: Medhurst: Stafford: Hope, of Jedburgh: Taylor and Martineau: Church: Babbage: Pouchee (for type), Wilson: Hansard.

CONTENTS

CHAPTER VII—p. 689.

PRINTING MACHINES.

Of Steam-engine and other Machinery applied to Printing: General feature: Mr. Nicholson; his Patent, as containing the Principle of every subsequently-invented Machine for Printing: Machine of König: The Times Newspaper: Mr. Bensley's first application of it to Book-work: Machines of Applegath and Cowper: Rutt: Brightley and Donkin: Bacon: Cooper and Millar: Applegath again: Bold: Sir William Congreve: Parkins: Mr. Spottiswoode: Mr. Hansard; Napier's NAY PEER.

CHAPTER VIII—p. 715.

ON PRINTING INK.

First Improvements in Ink, by Baskerville, in 1760: Mr. Bulmer, 1790: First Manufacture for Sale: Mr. Blackwell: Mr. Thomas Martin: Martin and Grafton of Birmingham: Secrets of Ink-making: The Black: Qualifications of Good Ink: Receipt for making Baskerville's Ink: Of the Varnish: Dangerous Process: Receipts for Black Ink and Red Ink: French mode of making the Varnish, Blacks, and mixing for Ink: Mr. Savage's Receipt: Coloured Inks: Observations on the Colour to be kept up: Specimens of Qualities: Mr. Griffiths, and other Makers.

CHAPTER IX—p. 734.

THE OVERSEER, &c.

Of the Overseer of a Printing Office: His Duties: Rules for the good Government of the Office.

CHAPTER X—p. 741.

THE READER, &c.

Correction of Proofs: Marks of Corrections: Correcting in Metal.

CHAPTER XI—p. 756.

THE ACCOUNT BOOKS.

On the Mode of keeping the Accounts of a Printing-Office: The Work-Books: Warehouse-Book: MASTER'S BOOK.

CHAPTER XII—p. 762.

WAREHOUSE DEPARTMENT.

Of the Warehouse: Duties of the Warehouse-man: Giving out Paper, Hanging up, Taking down, Laying down a Gathering, Gathering, Collating, Folding, Pressing, Making up Waste, Booking.

CHAPTER XIII—p 778.

PRICES.

Journeymen's Wages: Price-scale of 1785: Subsequent Advances and Regulations: Charges to the Booksellers and Employers: Comparison of Expenses, Wages, Charges, and Profits: Warehouse: Cold-pressing with glazed Papers: The Hydraulic Press.

CHAPTER XIV—p. 801.

On the Rolling Press, or Copper-plate Printing: Description of the Press: Mode of Inking and Pressure: Charcoal Vapour exchanged for Heat of Steam: Further exemplification of the difference of Type and Plate Impression.

CHAPTER XV—p. 805.

Construction of a Printing-Office: Space required: Health of Workmen; Safety from Fire; Security of the Work, gained by a new mode of Drying the Sheets: Effectual mode of Warming and Ventilating an Office: Description of Apparatus: Best method of Lighting.

CONTENTS.

CHAPTER XVI—p. 815.

STEREOTYPE PRINTING.

SECTION I.

General Description of the Process: Origin of the Principle: Modern application: Van der Mey's process of forming Type into solid blocks, not Plates: Mr. Tilloch's Statement: Mr. Nichols's account of Ged's Stereotype: Mr. Tilloch's invention of a similar process fifty years afterwards: Didot: Lord Stanhope and Mr. Wilson.

SECTION II—825.

Inquiry as to the probable Advantages of Stereotype: Controversy on the subject: Mr. Wilson's Reply, and Propositions in favour: Arguments in opposition: Calculations of relative Expenses.

SECTION III—846.

Minute detail of the Art of Stereotyping: Form of the Type, Quadrats, and Spaces: Chases and previous preparation: Stanhope Manuscript, with Observations upon each head: Stereotype Imposing Furniture: The Gypsum: The Foundry; its Fittings up and Fixtures: The Moulding Process: The Oven for baking the Moulds: The Process of Casting: Various utensils required: The Picking Process: The Lathe for turning the backs of the Plates: Metal for Casting Plates.

SECTION IV—872.

Various other modes of Stereotyping: The French: Hoffman's Process: Pingeron: Rochen: Carez' foundation of an English Patent: Gengembre and Herhan: Efforts in the Art, to form Assignats: Herhan's Process of striking the Mould in Semi-fluid Metal: His new method of composing Matrices instead of Types: Applegath and Cowper's New Patent for striking the Mould: Similarity to the Methods of Carez and Herhan: Mr. Brunel: His Patent for a New Mode of Stereotyping: Advantages: Not yet applied to Book-work: Very similar to Hoffman's.

SECTION V—884.

Of fixing Stereotype Plates for working: Nailing on Blocks of Wood: Lord Stanhope's Iron Blocks, with Ledges and Screws: Cement Blocks: Universal Plate, with moving Ledges: The Author's invention for this purpose.

CHAPTER XVII—p. 888.

ON POLYAUTOGRAPHIC PRINTING, OR LITHOGRAPHY.

Invention by Senefelder: His Work; published by Mr. Ackerman: Origin of the discovery: Lithographic Stone: Ink for Lithography, and method of inking it: Paper for transfer: Preparation of the Stone: Cylinders for inking the Stone: Paper for Lithographic Printing: Numerous causes of failure in the Drawing: Lithographic Presses: The Upright Lever, or Pole Press: The Bavarian Cylinder, or Star Press: Mr. Ruthven's Press: Various styles of Drawing applicable for Lithography: Advantages of Original Drawings on the Stone: General opinion upon public advantages of the Process, and how far Lithography and Typography are likely to affect one another: Comparison of Prices.

CHAPTER XVIII—p. 911.

DECORATIVE PRINTING.

Revival by Mr. Savage: The Chiaro Oscuro: Colours by suites of blocks: Manner of Papillon: Mode of Printing: Paper Hangings: Chinese: Initial letter B of the Mentz Bible: New Mode of producing such a Specimen: Mr. Savage's Specimens: Requisites of the Artist: CUI BONO: Calculation of Cost: Failure of the Chef-d'œuvre: Pleasing relief on referring to the first principle of the Art of Printing: Branston's Cave of Despair—reversed.

N. B.

P. 284. *Contents of Section; dele the words from* Digression *to* ADDENDA.

Addendum to page 395.—As far back as I have been enabled to trace, the following scale will show the Prices of Type from the London Letter-Founders.

	1763 to 1792.		1796.		1800.		1805.		1816.		1825.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
Pica	1	0	1	1½	1	3	1	6	2	6	1	11
Small Pica	1	2	1	3½	1	6	1	8	2	8	2	2
Long Primer	1	6	1	8	1	10	1	10	3	0	2	4
Bourgeois	2	0	2	2½	2	6	2	6	3	8	3	0
Brevier	2	6	2	9	3	0	3	0	4	0	3	2
Minion	3	6	3	10	3	10	4	0	5	0	4	0
Nonpareil	5	0	5	6	5	6	6	0	7	0	5	6
Pearl	6	0	6	7	6	7	7	0	8	0	6	6

As the comparison may, either now or hereafter, be useful, the opposite page shows a general scale of London Letter-Founders' Prices, dated Feb. 1825.

In p. 448, the statement of proportionate prices of cast and milled leads will not appear to be, at the present time, quite accurate, as the founders have now (1825), in consequence of the use of the latter, as well as of much competition in supplying the former by those who have adopted the casting of leads (or space-lines) as a business independent of Letter-founding, greatly reduced the price of that article of printing materials, the present price being, for 4 to Pica leads, 1*s.* per lb.—6 to Pica, 1*s.* 4*d.* per lb.—8 to Pica, 2*s.* per lb.

In page 655, *line* 1, *for* frontispiece to this work, *read* opposite engraving.

In page 722, *line* 8, *dele the* s *at the word* others.

In page 741, *et seq. (part of the impression) the running head* "DUTIES OF A READER," *should have been* "MARKS OF CORRECTIONS."

PRICES OF PRINTING TYPES.

	ROMANS & ITALICS. Letter, &c. s. d.	Quadrats. s. d.	Average. s. d.	ANTIQUES. s. d.	Orientals, Blacks, Flowers, Superiors, Mathematicals, and Open Two-line Letters. s. d.
Six-line Pica, and larger			1 3	1 3	2 0 per lb.
Five-line Pica to Two-line Pica			1 6	1 6	2 3
Double Pica to Great Primer			1 9	1 9	2 8
English	1 11	1 0	1 10	1 11	2 10
Pica	2 0	1 0	1 11	2 0	3 0
Small Pica	2 3	1 2	2 2	2 3	3 5
Long Primer	2 6	1 2	2 4	2 6	3 9
Bourgeois	3 2	1 6	3 0	3 2	4 9
Brevier	3 4	1 8	3 1	3 3	5 0
Minion	4 3	2 0	4 0	4 3	6 6
Nonpareil	5 10	2 6	5 6	5 10	8 9
Pearl	7 0	3 0	6 6	7 0	10 6
Diamond			12 0	12 0	18 0
Space-Rules			6 6		
Two-line Bourgeois, and larger			2 8	2 8	4 0
——— Brevier			3 0	3 0	4 6
——— Minion			3 8	3 8	5 6
——— Nonpareil			4 0	4 0	6 0
——— Pearl			4 8	4 8	7 0
——— Diamond			5 0	5 0	7 6

	s.	d.
Quotations and Justifiers	1	0 per lb.
Space Lines 4 to Pica	1	0
——— 5 ———	1	2
——— 6 ———	1	4
——— 7 ———	1	8
——— 8 ———	2	0

A weight of *old* Types equal to that of the *new* (with the usual allowance of 4lb. per 100lb. for Trett), taken in exchange at 6*d.* per lb. *if delivered* ON *or* BEFORE *the* 31*st of December of the* CURRENT YEAR.

TWELVE MONTHS' running Credit, or £10. *per cent.* DISCOUNT for READY-MONEY.

TYPOGRAPHIA.

PART I.

HISTORICAL INTRODUCTION:

SECTION I.

The Origin of Printing considered, unconnected with the idea of forming Books—The first step in the Art referred to the Second Age of the World, or that immediately succeeding the Flood—Description of the Printed Bricks of Babylonia, with an Engraving—Opinion of the mode by which the impressions on these Bricks were effected—Of circular pieces that present curious specimens of Clay-printing, with an Engraving—Failure of the learned in their attempts to decipher the contents of these Chaldean Prints—Hypothesis as to the intended use of such mementos—Reasons for concluding the origin of Alphabetic Writing to have been divine—Specimen of the most ancient Alphabetic Writing extant—Description of a Roman Signet used for Stamping—Concluding Reflection.

To investigate properly the Origin of Printing, it is necessary to carry our research to a period far more remote than that at which the art first became applicable to the making of books. The early inhabitants of the earth would naturally desire to perpetuate their useful discoveries, as well as the important events of their time, and it may be therefore fairly presumed, that they had some mode of communicating their ideas to succeeding generations before the invention of an alphabet. The scanty traditions recorded concerning the antediluvians do not enable us to come to any determination relative to their proficiency in commemorating the transactions of their time: whether, therefore, they employed stamps of any kind, or had any means whatever of transmitting knowledge except by oral tradition, we have neither history nor relics to inform us. But that period which immediately followed the deluge, and which some chronologers have termed the Second Age of the world, affords convincing proofs of the art of forming

impressions being then practised; and most probably with a view to propagate science—to inculcate special facts—and as a general means of preserving to posterity certain useful memorials. Purposes such as these, it is reasonable to conclude, were contemplated by the ancient Chaldeans when they stamped or PRINTED their tiles or bricks with various figures, hieroglyphics, or inscriptions.

In some instances these ancient specimens seem to have been sun-baked: yet, for the most part, they appear kiln-burnt to a surprising degree of hardness—even to partial vitrification. Of such materials was built the original City and celebrated Tower of Babylon; and although "a period of four thousand years has rolled away since the construction of the superb metropolis whose name they bear,"* still, even to the present day, do the Babylonian bricks, which have supplied the antiquary and orientalist with so many curious subjects for reflection and discussion, continue to be found. The Great City—"whose towers, whose temples, and whose palaces were built with brick dried in the sun, or baked in the furnace,"† and whose walls were ornamented with animals modelled to resemble life, richly painted in their natural colours upon the bricks of which they were composed, and into which the colours were afterwards burnt—if we regard it entire as the mother of cities, and in the accounts of historians look upon its vastness and its magnificence; or if we descend to the contemplation of so small a fragment of it as even a single brick; being in the latter case lost in wonder, how must imagination be overpowered in the former! What inexpressible emotions must the spectacle of operose splendour presented by the real pile, at the zenith of its glory, have excited! And what must reasoning creatures think of human grandeur, looking now at the bald and desolate site that once boasted such a display of sumptuous edifices—such a gorgeous scene of civic ostentation!

With regard to the substance on which the early Chaldeans denoted such things as they desired to commemorate, clay mixed with reeds seems to have been the composition that was prepared to receive the impression. This being formed into the shape of bricks, when the device to be stamped had been properly communicated to each, they were exposed to induration, by either the sun or fire.

* Maurice, on the Ruins of Babylon, p. 4. † *Ibid.* p. 6—10.

Of this substance—ἐξ οπτῆς πλίνθου—*of burnt brick*, formed into square masses, covered with mystic characters, the walls and palaces of Babylon were, for the most part, constructed.—Thus, intelligent travellers who have visited those ruins, and examined the composition of the bricks, and the various characters with which they are severally stamped, enable us to ascertain that the species of printing of which they afford specimens was practised soon after the flood; and though no emblems whatever of a prior date are extant, still it is not unreasonable to suppose that similar modes of perpetuating occurrences might have been invented, and in use among the antediluvians, and have been derived, among other arts, from them by the patriarchal Chaldeans.

Admitting, that by the labours of the learned, the devices stamped upon Babylonian bricks—the Persepolitan arrow-headed obeliscal characters—and the still more occult hieroglyphics of Egypt, may have been partially interpreted; yet the difference of opinion which exists respecting the subjects to which these extraordinary specimens of ancient art relate, renders it very doubtful whether the utmost efforts of human skill will ever be able to explain their true signification. It is, nevertheless, made probable, that the Babylonians were accustomed to imprint on their bricks certain allusions to astronomical phenomena having some signal astrological import. Particular configurations of the heavens, which distinguished the several seasons, as they related to the business of husbandmen, might also be registered in this way, to serve as a sort of calendar; and some impressions are imagined to contain historical details relative to the founders of those stupendous structures originally composed of the bricks in question. Struck at once with a sense of the antiquity of these vestiges of art—of the numbers presented to view—and of the variety of devices they bear (for every furnace-baked brick, found amidst these vast ruins, is imprinted with some emblematical design), the spectator, in the moment of his astonishment, feels almost disposed to concur with Pliny in the opinion—*Literas* SEMPER *arbitror Assyrias.*"*

I shall next attach, to a further description of printed bricks, some engraved specimens, with a view to afford my readers a

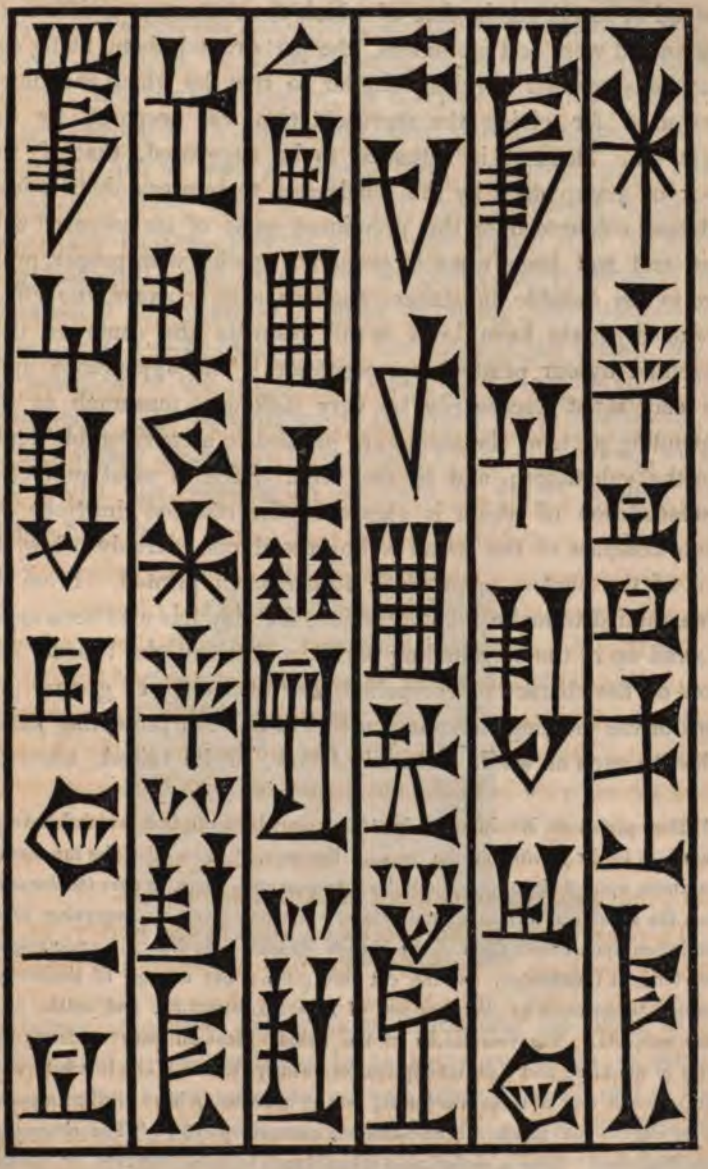
* Maurice, p. 92.

more perfect idea of THE FIRST STEP TOWARDS THE ART OF PRINTING. In this part of my task I shall confine myself to literal *inscriptions*, omitting the notice of every thing regarding animal and other hieroglyphical figures as found enamelled in a variety of colours upon ancient bricks. These inscriptions appear in vertical columns divided by lines; the characters that occupy the spaces between the lines are by some termed arrow-headed—by others, javelin-headed—by the French, *caractères à cloux*, or nail-headed. I should liken them to the kind of nails used for shoeing horses; or to the sort commonly used for fastening the tire upon wheels. It is thus that they are described by Chardin, Le Brun, Hagar, Maurice, and other oriental writers. Sir W. Jones observes, that "they appear to be regular variations and compositions of a right line; each line towards the top becoming of an angular figure." It has been already intimated that all attempts to explain the signification of these characters of antiquity have, as yet, been vainly exerted by the most skilful orientalists; nor has it been even satisfactorily determined whether they really are alphabetic characters, as the European—syllabic, as many known orientals—hieroglyphic, as the Egyptian—or arbitrary signs, expressive of complete ideas, as the Chinese.

Dr. Hagar, a celebrated orientalist, who in 1801 was appointed by the French government to superintend the publication of a Chinese dictionary at Paris, remarks, "that the spaces between the characters, as well as the proportions of the characters themselves, vary in bricks not impressed with the same stamp;" which strongly authorises the presumption that a system of characters was employed in these impressions, and that they were not symbolical representations of particular subjects.

There are three of this species of brick in the library, or, more strictly speaking, in the hall of the stair-case leading to the library, of Trinity College, Cambridge—two or three are deposited in the British Museum—and in the East-India Company's library, at their house in Leadenhall-street, there are several. I have examined them all; but finding those at Cambridge the most perfect, I went twice to that University for the purpose of minutely inspecting them: in the first place, for the sake of satisfying myself as to their identity with those specimens from which the engraving I have given was copied; and secondly (to me an object

of far greater interest), to ascertain, if possible, the method by which the characters were impressed. Perhaps, from the nature of his profession, a printer may presume upon being competent



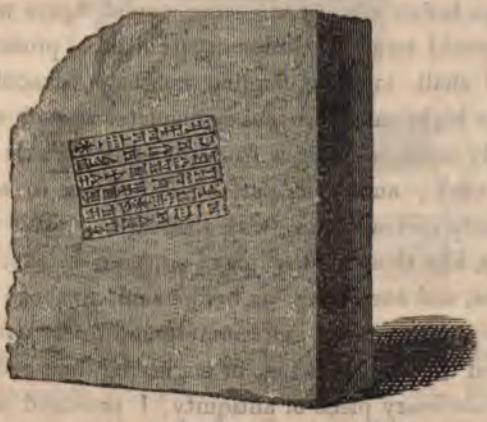
to give an opinion upon this long-controverted subject. I am decided, in my mind, that the whole body of characters contained in

the specimen from which the engraving is copied, and which is the same size as one of the originals before-mentioned, viz. $6\frac{1}{8} \times 3\frac{5}{8}$, was produced by one stamp or impression* of a block of wood or metal, on the face of which the characters and lines to be stamped were left prominent, the parts round them being cut away in a manner precisely similar to that by which the block here used for giving the representation was prepared by the engraver. Thus, it is intended to be suggested, that if the block or stamp used by the Chaldeans to impress their bricks had been coloured upon the prominent parts of its prepared surface, and had been, when so prepared, applied with proper pressure to any suitable substance, such as skin or paper, the effect produced would have been in all respects the same as that presented by our printed representation. The appearance upon the clay must necessarily be very different, inasmuch as the protruding parts of the stamp are pressed to a considerable depth into the substance; and in the brick which is most perfect (a representation of which is shown in the reduced drawing) the whole compass of the stamp is impressed considerably below the level of the surface upon which it has been printed. From the force applied to make the impression, the clay has also been urged to swell up in the surrounding parts; and where the broader surfaces of the characters compelled the displacing of greater portions of the yielding substance, a sort of burr, or projecting part is evident, such as would naturally follow, or be raised, when the

* The opinion of Mr. Maurice (p. 186) coincides with that which I have advanced as to the *printing* of the bricks. He says, "some bear the impressions of animals upon their surface, doubtless *stamped* upon them, *as were the characters*, when the substance was in a humid state."—He has given an engraving of the inscription upon one of those in the British Museum. It differs in some respects from those at Cambridge, and the cut here given; but enough of similarity is manifest to convince us that they are of coeval construction, and relate to the same subjects. The two bricks in the British Museum have evidently been burnt in the kiln; and their inscriptions are nearly similar. The intensity of the heat in which one of them was burnt, was so great as to have vitrified a portion of its edge. [Of which see also another instance, p. 10.] "The characters," says Maurice, "have a remarkable resemblance to those engraved on columns and pilasters at Persepolis; a circumstance which seems to prove a near affinity between those two most ancient nations; and affords certainly a strong additional argument for the high antiquity of those superb ruins." P. 186.

stamp was drawn upwards to be disengaged: from all which appearances convincing proofs are to be drawn, that the impressions were made after the brick had been formed, and when the matter had acquired such a consistency as was proper for the purpose.

In all the specimens I have seen, the prints have been struck in different positions, as if such operation depended more on the practical skill of the workman, on the accidental correctness of his eye and hand, for its position, than on any regular mode of execution; and as some specimens have their impressions much deeper than others, these are certainly further reasons tending to confirm the decision, that the prints were applied after the bricks were fashioned; and were done altogether independent of the formation of the mass.—The small engraving here inserted will serve to give a more exact idea of the shape of the bricks, and of the situation of the print, than could be well conveyed by bare description. The dimensions of the brick thus represented, is thirteen inches square by three inches thick; the corner of the one which the drawing is intended to depict having been broken off.



Having supported my opinions concerning the mode of the earlier kind of brick-printing by as many arguments as seem to me requisite, I now mean to go somewhat further, and to show that printing on clay was not, in those early ages, confined to such coarse purposes as stamping building-bricks only: but before I proceed into this subject, let me just remark, by way of exemplifying the progress which this species of the art seems to have

made in those primitive times, that the impressions on the bricks which I have already described as bearing the first specimens, and which may be dated 2,200 years before Christ, admit of no nearer a comparison, in point of excellence, with the work about to be described, than the letters stamped or formed in the moulds of the English bricks manufactured by Peto and Co. at the present day, do to the finest specimens of modern printing.

In the continuation of my subject, I come now to describe the superior species of clay-printing just alluded to; and which, in its operation, must have been very different from that early effort of the art already discussed, of which it evinces evidently an advanced step. The College library before-mentioned contains an article composed of a like substance to that with which the bricks just described are manufactured. It is moreover impressed with characters corresponding to the description given of those on the building-bricks, except that they are much smaller and more regular; indeed, compared with the other characters previously described, they may be said to be beautifully executed. The shape, however, of this curiosity is very unlike to that of any of those ancient relics before alluded to, being a solid figure which mathematicians would term a regular frustum of a prolate spheroid; but which I shall, in more familiar language, describe as about seven inches high, and three inches diameter at each end, increasing gradually in circumference from the ends towards the middle, like a wine cask; and all its parts bearing, one to another, proportions nearly corresponding with that figure. The characters it contains are, like those on the plane-surfaced bricks, arranged in vertical lines, and answering, as before said, to those on the other bricks, except being much more minute and finely wrought.* Not having found that any drawing, or engraving, had ever been made of this extraordinary piece of antiquity, I procured a drawing of it, by the pencil of Mr. Harraden, of Cambridge, who executed a

* "Besides the bricks with inscriptions which I have mentioned," says Mr. Beauchamp, "there are found here solid cylinders, three inches in diameter, of a white substance, covered with very small writing, resembling the inscriptions of Persepolis mentioned by Chardin."—Maurice's Babylon, p. 188.

"The same sort of cylindric fragments, with inscriptions upon them bearing a great similitude to those on the Babel Bricks, is also found in great abundance among the ruins of Persepolis."—*Ibid.* p. 189.

very difficult subject with uncommon fidelity and elegance; and the graver of Mr. Lee has done ample justice to the drawing.

The greatest possible care is taken of this precious relic of antiquity, now, probably, not less than 4,000 years old. It is mounted on a marble pedestal, covered with a glass-case secured by an iron bracket; and so contrived that the curious inspector may cause it to revolve upon its marble base. A small space, about a quarter of an inch wide, is left blank in the circumference, as shown by the drawing, over which, perhaps, the printing-mould did not join; and it was, probably, necessary that room should be thus left for such a portion of the clay to escape as would be displaced by the action of compression. Another part of this piece

is somewhat discoloured, and the characters about such part are indistinct; an effect evidently caused by the vitrifying heat to which it was subjected after it had received the impression. With the exception of the defect here noticed, the whole subject is very perfectly produced; the characters being so distinctly wrought, that one learned gentleman imagined he could distinguish the points, or divisions of sentences. This rare piece of ancient learning and art, together with the three bricks before described, was presented to the college by general sir John Malcolm.

Now of what possible use could a small barrel-shaped substance, such as I have been describing, be in building? Of what service could it be, being a solid, for domestic or other purposes? Rendered, as it seems, by the peculiarity of its shape, and by all its other characteristics, useless for any common purpose—if we take into consideration the pains used to produce the impression neatly and regularly as it is—and if, at the same time, we consider the abundance of its contents, I think we may reasonably contemplate it as having been a work of great public importance at the time it was executed.

Paying, then, due attention to all the particulars which distinguish this skilful production of those very ancient artists, I feel authorised in assuming, that it affords us a specimen of one of the chief modes of recording objects of national concern among the Chaldeans; or of propagating, and handing down to posterity, matters which eminent persons or families were desirous should become memorable. Its rounded surface made it capable of containing a multiplicity of items in a much more compact manner than they could have been inserted on flat tablets; while its figure was, perhaps, the most substantial, and the least liable to be injured by common accident, of any that could have been devised: hence it possessed the two desirable qualities of being both convenient and durable.

One of these printed pieces might contain a complete subject: or a subject might occupy several of them, which all together formed a series; each piece answering, as it were, such a purpose as the leaf of a book; one following another in regular order, from the beginning to the end of any subject, as the sheets in a volume. From a succession of these printed miniature monuments might numerous sets be made: and thus might laws, astronomical ob-

servations, historical annals, and any other subjects of interest to mankind, be recorded. It is scarcely possible to pursue the reflections caused by traces of human genius so venerable, without expressions of regret that the characters in which they would speak to us are too obsolete to be comprehended; and that the language they employ has become so totally extinct, that the interesting story it contains is thus likely to be lost for ever to the world.

Conceiving that the printed bricks found in the vicinity of ancient Chaldea are the earliest essay of an art from which mankind is enabled to derive and promulgate throughout the whole world inestimable stores of knowledge, human and divine—and considering the authentic testimony these specimens present as genuine productions bearing varieties of characteristic devices—considering also the indisputable remoteness of their antiquity, beyond which it seems, on the present occasion, if not absurd, at least quite unnecessary, to attempt to push inquiry—I shall think myself justified in referring the origin of imprinting characters on yielding substances to that period of time when stamped bricks were invented and used for the purpose of recording whatsoever was memorable, and for transmitting knowledge from one generation to another.

Thus have I assigned, as I hope, a rational origin from which I may set out to examine invention after invention, and improvement after improvement, in the means of diffusing and perpetuating all the treasures of the understanding, until I shall have accompanied persevering genius through its progressive stages to a degree of perfection beyond which, in the art of registering ideas and events, very little seems left to be accomplished.

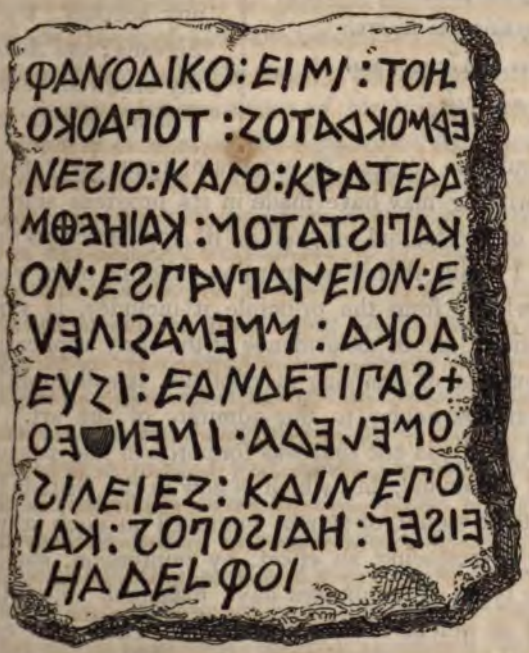
According to the chronology of archbishop Usher, which, as it is that attached by authority to the English Bible, may be esteemed the standard system of this country, Babylon was founded by Belus, whom the learned have identified as the Nimrod of scripture, about 2,233 years before Christ; and the tower of Babel was built by his successors about sixteen years after the founding of the city. Many authors have ascribed the origin of alphabetic writing to the Chaldeans; some have given to the Phœnicians the honour of the invention. Herodotus, Pliny, Plutarch, and others, signify that Cadmus, a Phœnician, settled in Bœotia about

1,500 years before Christ, where he built the city of Thebes; and that he was the first who taught the Greeks the use of alphabetic symbols. Here, perhaps, it may be well to suggest that Cadmus was contemporary with Moses; and the time of his migration into Greece, making a little allowance for the discrepancies of chronologers, corresponds, as near as need be, with the time when the Israelites came into possession of the promised land. Now Moses, we are fully assured, had been qualified to write the commandments of God at Sinai; and it is but reasonable to suppose that an art so valuable as writing, would, when once learnt, rapidly circulate among the most learned of the Hebrews. The inference, therefore, from these premises is, that, before he left Asia, Cadmus had, by an intercourse with some of the Hebrew people, learnt the use of letters; and when he emigrated to Greece, he carried the art with him, in which country it was unknown until he taught it.

Maurice on this subject says (p. 94) "But the question concerning the origin and antiquity of alphabetic writing, if the rude characters on these bricks can be thus denominated, is too important to admit of so hasty a decision; and it also opens too vast a field for discussion to be at present entered upon. . . . . I cannot, however, avoid owning myself very much inclined to join in opinion with Mr. Bryant, and other genuine sons of science, not infected with the French sceptical philosophy, that so divine an art could not have its origin in the unassisted powers of the human mind." And the same author, after having adverted to a number of arguments (p. 158—180) relative to the first application of letters to the purposes of human correspondence, concludes his dissertation with the following energetic passage: "In this state of uncertainty, the mode of conduct for us to pursue, at once the most consistent with reason, the most conformable to true science, and the most agreeable to sound religion, is to conclude, that though some sort of characters, as before observed, formed by the ingenuity of man, or founded upon the basis of the ancient hieroglyphic system, was occasionally used in the early ages of the world, that so *divine an art*—an art apparently so far surpassing human powers to invent, as ALPHABETIC WRITING, in the perfection in which it has descended down to us from an Asiatic source, through the medium of the Greeks and Romans, could have its origin in *inspiration only*, and was at first revealed to man, amid

the awful promulgations at HOREB;—amid the thunders that shook the basis of Mount SINAI!"

The most ancient literal specimen now known to be extant is the Sigean Inscription; which is contained in a tablet that was disinterred upon a promontory called *Sigeum*, situate near to ancient Troy. It is engraved on a pillar of beautifully white marble, nine feet high, two feet broad, and eight inches thick; which, as appears by an excavation in the top, and the tenor of the inscription, supported a bust or statue of Hermocrates, whose name it bears. This said tablet may be considered to include a specimen of writing, or rather of letters engraved on stone, at least 3,000 years old. It has been the custom of most eastern nations to write from the right side towards the left; but it will be seen by the sketch here given of the Sigean fragment, that the early Greeks had then deviated from the mode of the oriental writers in this particular. The inscription begins on the left side of the face



of the tablet, proceeding on to the right; and the following line commences at the right hand side of the tablet, and runs on towards the left: and thus it continues to go on, each alternate line beginning at the same side on which the preceding line finishes; a mode of writing peculiar to the period when the Sigean

monument was executed; and which, it is presumed, continued in vogue no great length of time: for the inscription on the pedestal of the Colossus at Delos, nearly contemporary with the Sigean, as well as Amphitrion's on one of the Tripods at Thebes, reads on from left to right only:

The Sigean Inscription in Modern Greek.

Φανοδίκυ εἰμὶ τοῦ
Ἑρμοκράτους τοῦ προκο-
νησίου. καὶ εγὼ κρατήρα
καὶ πίστατον καὶ ἤθ-
μον ἐς πρυτάνειον ἔ-
δωκα μνῆμα Σιγει-
εῦσι. εὰν δέ τι πάσχ-
ω μελεδαίνειν ἔω
Σιγείεις καὶ μ' εποί-
ησεν ὁ Αἴσωπος καὶ
οἱ ἀδελφοί.

Translation of the Sigean Inscription.

I am Hermocrates, the Son of Phanodicus, of this promontory; and I have presented, in the Prytaneum,* a cup with a stand and wine-strainer, as a monument to the Sigeans. If, then, I endure care on any account, I go to the Sigeans; and Æsopus, and my brethren have erected a monument for me.

It would be useless to expatiate upon every rude gradation which printing may have made in its progress since the first invention of letters, and previous to its application to the making of books: I shall, therefore, mention only one other vestige of antiquity, which, from the principle it includes, is very worthy of observation; and as an evidence of the early application of letters to the purpose of stamping inscriptions, it will doubtless prove an interesting particular to the admirers of the art. The relic to which I allude, is one that was formerly in the possession of the duke of Richmond, but which is now in the British Museum. It is a metallic signet, or stamp, engraved in such a way as to be capable of producing an effect, by impression, similar to that of printing types of the present day; inasmuch as, all the letters are in relief, as well as the border or rim. The metal on which the inscription is cut is brass; and its appearance indicates great antiquity. The face is about two inches long, by about four-fifths

* The Prytaneum was a Common-Hall, in which the Grecian senators feasted together, and entertained, at the public charge, such as had deserved well of their country.

of an inch wide. To the back of it is attached a ring, apparently for the purpose of its being worn, or to serve as a handle. The inscription is comprised in two lines, the letters of which are Roman Capitals of good proportion, though not spaced or divided so as to give proper distinction to the several parts of the inscription, which is reversed, and would give, in its impression, nearly as follows:

CICAECILI
HERMIAE.SN.

which as we should print it, in the modern way, would stand thus:

C. I. CÆCILII HERMIÆ SIGNUM.

Caii Julii Cæcilii Hermiæ Signum.

Caius Julius Cæcilius Hermias, since we do not find his name handed down to us by any other means than by his sigil, could not, it is presumed, have ranked very high among the public characters of his time. We may suppose him to have been a functionary of some Roman office; or, perhaps, no other than a private steward who used the signet to save himself the trouble of writing; or, which is equally probable, to supply his incapability to write at all. But the very circumstance of his being a person of no historical notoriety encourages the supposition that similar *sigilla* were by no means confined to the higher order of Romans.

Its formation, and the ring attached to it, fully authorise the belief that it was designed for stamping or printing the signature it contains, upon parchment, or some other flexile substance; as it is not at all calculated for making an impression upon lead or any kind of metal. It is observed, with just discrimination, in the description given of this signet in the Philosophical Transactions, "that, as the rim and letters are all exactly of the same height, and as the field of it, or that part which has been cut away, is very rough, and uneven in its depth, this curious stamp has evidently been used for making an impression in ink on some even surface, and not for being impressed into wax, or any other soft substance: for, had it been intended for the latter purpose, the field would certainly have been rendered as smooth and even as possible." *—A somewhat similar stamp of bronze, bearing a Greek inscription, is in the possession of the Antiquarian Society of Newcastle-upon-Tyne.

* Vol. xl. No. 450, p. 388.

"The first use of Printing* among the later ages, was by wooden blocks in this very manner; and it was not till long after this invention that we learned the way of using separate types for the letters; and these were then called *typi mobiles*, in opposition to the blocks, where the whole page was contained together, which were called *typi fixi*. This signet of the duke of Richmond's, which was found near Rome, is truly and properly one of those *typi fixi*, and prints off its impression on paper with our modern printer's ink, as well as any set of letters cut in this manner can be expected to perform. This seems, therefore, the most ancient sample of printing that we know of; for, by the appearance of the metal, it seems to be of the Higher Empire.

"It is plain, by this stamp, that the very essence of printing was known to the Romans; for they had nothing to do but to have made a stamp, with lines three or four times as long, and containing twenty lines instead of two, to have formed a frame of types that would have printed a whole page."

Those who have time to philosophise upon the various specimens of ancient clay-printing, imported by oriental travellers, and which have afforded matter of so much interest to antiquarian connoisseurs, will, perhaps, find the few hints submitted in the preceding pages, calculated, in some measure, to assist the prosecution of their inquiries into the use of those relics. I might have extended this subject much further than I have done, by mentioning other relative facts, and by entering into the speculative arguments which they severally might have furnished: but my particular object required only the examination of such broad and conspicuous traces as led to a fountain-head of that art which has proved of such signal consequence to the moral world; and the origin of which I set out to explore — the express intent of what has been adduced in this preliminary section, was to show, that previous to the invention of books recourse was had in the earliest times to a species of printing, of extraordinary durability, for the purpose of commemorating those things which it was most desirable should be known and recollected.

* Rees's Cyclop.—Article "Printing."

To face page 2

生我被晚娘赶出門、旦哦相公也遭徙母所害、生正是這等、說來真乃天生一对、旦地產一双、生旦天生一对好姻緣。地產一双、並天連兩人遭徙母害。双〻都是受含冤。生猛然間提起当年事。可恨淫妇心太偏、若要陰却心头恨、殺却淫妇报合冤、旦相公就請我父亲出来相会、晚生哎真乃妇人家、好不知道理、旦怎么、生令尊是前官問就的、我乃新官到任、未曾看来招詳、怎么使得、旦哦要看過招詳么、生正是夫人請退、旦曉得、生蒼头、介生到該房取李奇招詳進来、外曉得、啲該房的、介外取李奇的招詳進来、外在、生退下、外哦、生審得李奇因姦不遂、迫死育女、問成死罪一名、吓夫人方纔說是僕女、旦上怎么這狀子上、又是育女、若是僕女、

世間主人迫死僕女、律无抵償之罪、若是育女、目当有罪了、旦相公招詳怎么道、生哪審得李奇因姦不遂、迫死育女、問成死罪、旦怎么講、生哎這是前官問就、下官难以開消、旦吓這等說來、我女眼睜〻不能相会了。哎我那爹吓。生夫人不必悲泪、令尊有救了、旦哦相公救得么、生非是下官救得、前日火牌到来、新按臺到任、先来襄城下馬、有人出名告狀、替父伸冤、令尊就有救了、旦我有此心、只是無人與我寫、生寫甚么、旦寫狀、生我呢、旦相公也会么、生吓我乃皇榜進士出襄城、難道這張狀子也寫不来、唔夫人尔好輕視人也、旦吓相公若能救得父亲、尔就是重生父母、再养爹妳、生吓夫人請研起墨来、旦曉得、生一霎時怒發三千丈、不由人

See the Appendix for a description of this specimen of Chinese printing.

惡氣滿胸堂。我與尔寫張当官告。管叫尔事到头来自有明。上寫着告状人李旦呀嗤我說尔不会寫不会寫生替父伸寃要个名字旦我沒有名字生哎為人豈有无名之理講来旦我在家都叫做小姐生小姐还是大姐那是称呼的我家人〻都叫我做相公使不得要个乳名纔好講来旦哎糊里糊塗寫个罢生哎替父伸免出名告状按台跟前由如虎拔牙死里逃生豈是糊里糊塗寫得的快講来旦我叫做李生有了李字講来旦桂主哦桂〻甚麼講來旦桂枝生桂枝妙吓夫人好个美名下官当日合婚之時正是秋八月正秋風折取桂花枝旦呀嗤生喏尔看夫人為着父亲十分煩恼无人在些不免與他要笑要笑夫人好个美名旦永奬

生叫做桂枝桂便桂其中有一点不貴旦吓那一点不貴呢妇人家不出閨門纔是尔陝西到小西有何貴處旦吓比尔呢生比我甚麼旦開香到亦城生比号旦一樣生吓這个旦吓這个生哈〻旦呀嗤生告状人李旦呀寫又不寫只管李〻甚麼生桂枝旦呀嗤生告状人李桂枝為乞天超生父命事係滋中府褒城具僻佑里馬头村居妾父亲名李奇四川販馬有繼母楊三春惡毒不仁將妾弟。生夫人令弟叫甚麼名字旦李泰乳名保童生做何生理旦苦讀詩書生哎可惜這少年的書生吓旦哎兄弟吓生將妾弟李保童趕出在外苦磨滅迫奴家坟塋散生妾父親正三載归家回轉到家庭尋不見姐弟二人問楊氏他說汙病死問了火又說

of the middle compartment. The lines are read downwards, and begin at the right hand column.

SECTION II.

Origin of Printing connected with the idea of forming Books—Division of this subject into Two Periods.

FIRST PERIOD.—*Of the invention of symbols or figures, with words, engraved on blocks—Finiguerra—Earliest prints from blocks—Mode of obtaining impressions at that early time—Subsequent stages of block-engraving—Wohlgemuth—Albert Durer—Holbein—Original Specimens of Durer—Chronological view of the Four Grand Steps of the Art—Books of Images* with *and* without *text—Description of the "Biblia Pauperum"—Description of the "Speculum Humanæ Salvationis."*

SECOND PERIOD.—*Moveable Types—Gutenberg—Fust or Faust—Schoeffer—Works executed by these Artists—Claims in favour of Haerlem—Decision in favour of Gutenberg, Schoeffer and Fust—Brief view of the Rise, Progress, and Diffusion of the Art in Europe in the fifteenth, sixteenth, and seventeenth centuries—Its extension to the East Indies, Tranquebar, Russia, and Africa—Religious Establishments great promoters of the Art—Revival of Greek Literature—First appearance of Newspapers, Magazines, Reviews, Annual Registers, &c.—General Eulogium on the Art by the late Earl of Stanhope.*

IN giving a concise history of the art of Book-printing, it will be proper to view its progress as forming two distinct periods:

The First—That during which rude attempts were made to convey the ideas intended to be imparted by means of symbols, or figurative representations of the ideas themselves, accompanied by occasional letters and words resembling the hand-writing of those times; which models, being cut or engraved on blocks of wood, in the manner of pages, served to multiply, in *fac-simile,* as many copies as were required. Models of this kind were totally inapplicable to any other ideas or subjects than those, in particular, for which they were expressly designed.

The Second—That period from which the art took its first step towards general utility and perfection, by the invention of moveable characters or letters which were applicable to the formation of every word required to be conveyed by speech or writing—to every variety of sound—and to the representation of every idea;

and this state of general utility and perfection having been accomplished in the most consummate degree of excellence, the art has been, with much propriety, denominated

TYPOGRAPHY.

---

§ 1.—*FIRST PERIOD.*

The Origin of the art of engraving upon Wood is so far connected with the object of the present inquiry, as having, doubtless, suggested those principles which led ultimately to the invention of Printing. But, independent of this important consideration, wood-engraving is a subject of primary interest to every mind disposed to contemplate philosophically the manual and fine arts as essentially aiding the progress of the higher sciences. Mr. Ottley, in his "Inquiry into the Origin and early History of Engraving upon Copper and Wood" (to which work I beg to recommend the attention of every one who may not already have experienced the delight, amusement, and instruction it is calculated to afford), has given a masterly sketch of the infant stages of these branches of the fine arts. There is also another volume worthy of being here mentioned, as containing a fund of valuable matter relative to the subject before us, by which the treatise of Mr. Ottley has been considerably embellished; and to which, in a subsequent chapter, I shall have occasion frequently to refer, namely, that of Papillon,* a professor of eminence in the art of engraving, who was instructed in it by his father, and who, from an early period of his life, began to collect materials for the history of his favourite art.†

"The origin of Engraving on Wood," says Mr. Ottley,‡ "like that of many other useful arts, is obscured by clouds, which the learned have in vain laboured to dispel. The want of evidence, contemporaneous, or nearly contemporaneous, with the truth sought, has hitherto rendered every attempt for its attainment unavailing; and conjecture and hypothesis must still be employed to fill the chasms which proofs cannot be found to occupy. That it is

* Papillon, Traité Historique, &c. de la Gravure en Bois 8vo. Paris, 1766.

† Ottley, i. p. 33. ‡ ibid. p. 5.

of Asiatic original appears to be the best-founded opinion; and if the name of its inventor is destined ever to be known, it is most probable that it will be found among the records of Eastern nations. Of all the nations with which we are acquainted, China seems to have the best claim to the invention. It is well known that the Chinese, in writing their language, do not describe words by means of a combination of letters, each expressive of a particular sound, as is the case in European languages; but that they represent each word of their endless vocabulary by one distinct character serving to indicate it alone; if, indeed, those characters can properly be termed the representations of words, which are often, individually, expressive of a sentiment that could not, in speaking, be expressed without the assistance of many words. The prodigious number of these characters, amounting, according to some accounts, to eighty thousand, renders it impracticable for them to print their books with moveable types. To cast them separately would be an endless undertaking; and, were it done, by far the greater part of them would be of very rare occurrence.

The method they pursue, is as follows: The work intended to be printed is transcribed by a careful writer upon thin transparent paper. The engraver glues each of these written sheets, with its face downwards, upon a smooth tablet of pear or apple-tree, or some other hard wood; and then, with gravers and other instruments, he cuts the wood away in all those parts upon which he finds nothing traced; thus leaving the transcribed characters ready for printing. In this manner he prepares as many blocks as there are written pages.*

"In printing, the Chinese do not use a press, as we do in Europe; the delicate nature of their paper would not admit of it; when once, however, the blocks are engraved, the paper is cut, and the ink is ready, one man, says du Halde, with his brush can, without fatigue, print ten thousand sheets in a day.†

"The block to be printed must be placed level, and firmly fixed. The man must have two brushes; one of them of a stiffer kind,

* J. B. du Halde's "Description, &c. de l'Empire de la Chine;" 4to. 1736, tom. ii. p. 299;" as quoted by Mr. Ottley, p. 6—8.

† "*Dix mille feuilles.*" Had this number been stated in figures, I should have given the printer credit for having introduced a cipher extraordinary, in honour of Chinese industry. The account is absolutely incredible.

which he can hold in his hand, and use at either end. He dips it into the ink, and rubs the block with it, taking care not to wet it too much, or to leave it too dry; if it were wetted too much, the characters would be slurred; if too little, they would not print. When the block is once got into a proper state, he can print three or four sheets following, without dipping his brush into the ink.

"The second brush is used to rub over the paper, with a small degree of pressure, that it may take the impression: this it does easily, for, not being sized with allum, it receives the ink the instant it comes in contact with it. It is only necessary that the brush should be passed over every part of the sheet with a greater or smaller degree of pressure, and repeated in proportion as the printer finds there is more or less ink upon the block. This brush is soft, and of an oblong form."

According to Chinese chronology, the art of printing was discovered in China about 50 years before the Christian era, under the reign of Ming Tsong I. the second emperor of the Tartarian dynasty; the art of paper-making about 145 years afterwards, before which period they had been accustomed to transcribe, or print their writings, in volumes of silk or cloth, cut into the form of leaves.*

The earliest document concerning wood-engraving in Europe, is given by Papillon; but this authority has given rise to much controversy among the critics, led by Heineken on one side, and Zani on the other, of which latter Mr. Ottley speaks in terms of much respect.† Papillon gives the glory of the invention to two noble personages, now familiarly called THE TWO CUNIO. They were twin brother and sister, the first children of the son of the Count di Cunio, which he had by a noble and beautiful Veronese lady, allied to the family of Pope Honorius IV. Their work was a representation, in eight pieces, of the actions of Alexander the Great, with Latin verses. The time of execution, about 1285.

Mr. Ottley gives a statement of the argument on both sides of the question, as to the authenticity of these non-existing documents, and concludes, "Thus much for Papillon's interesting narrative respecting the two Cunio; a document—for so, I think, I may now term it—from which we learn, that engraving in wood was practised as early as the THIRTEENTH CENTURY, in those

* Du Halde, as quoted by Ottley, p. 9. † p. 10.

parts of Italy, at least, which border upon the Gulph of Venice. . . . . The distance between this epoch of wood-engraving, and the next of which we have any record, is, indeed, formidable. Time may, perhaps, restore those links of the chain which are at present wanting."*

It is not, however, a little remarkable, that the next "links of the chain," are the application of the principles already developed of this important art to purposes more of trifling and amusement than of general utility; namely, for the making of Playing Cards, to pass away the time of a king. Thus the document coming next in chronological order, bears date 1392, relative to Cards made for Charles VI, which has been found in a casual entry in a register of accounts of the French court of that period. It appears from this, that the charge was fifty-six sols for three packs of cards of three distinct sorts; and the argument drawn from this, in support of their having been engraved, is grounded upon the price paid being wholly inadequate, even in those days, unless they were first printed from outline engravings, and afterwards gilt and coloured by hand; although, no doubt, with more than an ordinary degree of care, as they were for the king's use.†

There is a kind of negative proof that Cards were not known very long antecedent to that period, from another French manuscript of 1338 and 1344, highly illuminated with representations of every game and sport of that age, but which gives no representation of any thing like Card-playing;‡ but, in a French romance finished in 1341, a familiar mention is made of cards, which has given rise to a conjecture that they were manufactured in the manner above mentioned, in France, early in the fourteenth century.§

We come now to more authentic records, and positive dates; and first, a decree of the government of Venice, dated Oct. 11th, 1441, which refers to "the great quantity of playing-cards, and coloured figures printed, which are made out of Venice; to which evil it is necessary to apply some remedy, in order that the artists, who are a great many in family, may find encouragement rather than foreigners;"—"from this time in future, no work of the said art, that is printed or painted on cloth, or on paper, ... and playing-cards, and whatever work of the said art is done with a brush and

* Ott. p. 44. † p. 69. ‡ p. 71. n. § p. 47.

printed,"§ &c. &c. This appears fair argument that wood-engraving, and printing from those engravings, was practised at Venice, at least as early as the commencement of the fourteenth century, since it would have taken a period of thirty or forty years to establish a new invention of beneficial commerce, affording means of subsistence to a body of artists, who had been opposed by foreign competition; and to bring the trade to such a state of decay, as to call for legislative enactment for ensuring its future support.

The Venetians were the first European nation who obtained any consideration as a naval and commercial power. Their connections with Asia were so firmly established, that, so early as 1189, a district of Constantinople was allotted to them, and they extended their commercial relations even to the extreme parts of Asia. It is, therefore, not presuming beyond the bounds of probability to suppose that they acquired the art of engraving by the facilities of intercourse thus afforded with the people of Tartary, Thibet, and China. "The use of cards, therefore," as Mr. Ottley says, "although it does not appear to have given rise to the invention of the art, powerfully operated towards its further promulgation; and is, on that account, in a considerable degree connected with its early history."*

If now my reader wishes to pursue an inquiry so highly interesting, I must refer him to Mr. Ottley's work, on the Early Use of Playing Cards. I have already trespassed, I fear, far beyond what some may think necessary to my purpose, yet I would fain claim patience for a short notice of the rise and progress of the art of engraving on metal plates, which ultimately led to the sister profession of typography, COPPER-PLATE PRINTING.

In about 1450 lived Maso Finiguerra, a goldsmith and engraver of Florence. The engravings, *in niello*, executed by him on silver plate for the service of the churches, as well as other ornaments, small statues, &c., appear to have been of the most finished and beautiful description; sometimes so very minute that in a surface not much exceeding the size of the palm of the hand a composition of thirty figures was comprised. Some of his work, on pieces of the sacred plate called *Paxes*, were remaining, in 1732, in the church of St. Giovanni, at Florence. Of course, like other engraving on plate, his was only

* Ott. i. 65.

for the purpose of ornamenting each piece; and it was presented to the eye of the spectator in the same view as any other drawing or writing: but, *previous* to the finishing of his pieces, it is clearly ascertained, that the artist, in order to judge whether his design was perfect, took an impression, or mould, with very fine earth, upon which he cast melted sulphur, and thus obtained a *fac-simile* or stereo-cast of the original. But he did more—he laid the foundation of the art of Plate Printing; for he took off, ON PAPER, PRINTS of his engravings. These processes were effected previous to the finishing and perfecting of his work, by the method which remains to be now described, and from which they are called "Engravings in niello."

Every stroke of the burin* was filled, by means of fusion, with a black metallic composition, called *niello*, which became as hard as the plate itself, and, bearing a fine polish, produced every shade and effect of a beautiful drawing. Various experiments have shown, that after this composition was once fixed, no art, but what would equally destroy the engraving itself, could be able wholly to remove it. The *sulphurs* and the *prints* must, consequently have been coeval with the artist himself. Of these sulphurs two are yet remaining, and several of the prints, undoubted originals from the hands of Maso Finiguerra, as reasons hereafter to be stated will decide.

The impressions of "The Assumption," one now in the National Institute at Paris, and one in the possession of Mr. Ottley, afford sufficient evidence in themselves that they were taken from a plate engraved as a perfect picture. Thus, several small scroll inscriptions have all the characters reversed, or reading from right to left, and the little figures playing on stringed instruments, as the guitar, fiddle, &c., are using the left hand. The impressions on sulphur must have had an intermediate mould, for they are right to the eye, and the most minute examination has not left a doubt of both having been taken from the same original, previously to its being filled with *niello*, as the finishing process; after which none could possibly be taken, for the reasons before stated. That these sulphurs were held in high estimation, as *fac-similes* of a beautiful original, is proved from those remaining having been

* The *burin*, as used by engravers, is formed by a square bar of steel, cut obliquely to a point from an angle, so that it must necessarily clear its way on both sides, as the artist guides the point.

preserved with the greatest care in deep frames, or tabernacles, richly carved and gilt. It appears, also, that they were filled, in like manner, with a black composition, but of a softer substance, in order to present a *fac-simile* of the original; or to prove to the artist whether any thing was wanting to complete the design. Some have affirmed, that the impressions on paper have been formed at a more subsequent period, from the sulphurs; but the fragile nature of the material will be sufficient refutation of such an idea to any one acquainted with the power required to take off an impression from the most common engraving. In the absence of a machine, or press, for effecting such a purpose, nothing less than the whole power of a man, exerted upon a roller, could take off even a slight impression, and even such a power must have crushed the sulphur to atoms.

The earliest *print* from a wood block of which we have any certain date, is now in the collection of earl Spencer. The representation is of St. Christopher carrying the infant Saviour across the sea, the date 1423. It was discovered by Heineken, in one of the most ancient convents in Germany, the Chartreuse at Buxheim, near Memmingen, pasted within one of the covers of a Latin manuscript of the year 1417. Mr. Ottley and Mr. Dibdin have both given *fac-similes* of this interesting specimen of wood engraving; it has an inscription at the bottom:

Cristopheri faciem die quacunque tueris,
Illa nempe die morte mala non morieris.
Millesimo cccc° xx tertio:

Which may be thus rendered

In whatsoever day thou seest the likeness of St. Christopher,
In that same day thou wilt, at least, from death no evil blow incur.
M.CCCC.XXIII.

Another wood print, representing "The Annunciation," said to be the undoubted production of the same artist, but evidently executed with an improved hand; and a third, of the "Martyrdom of St. Sebastian," together with one or two others, by the hands of German wood-engravers, not so accurately described, will bring me from these singly-printed and coloured prints to the advanced step of Block Book-printing.

The impression, or printing of these block pages, has evidently been effected by friction. This was the mode by which all the

early printing was executed, and there is good reason to believe that the paper was often applied in its dry state.* "The shining appearance of the backs of those old wood-engravings which were taken off by friction, is, I think, a strong evidence that the paper was commonly used dry: wet paper could hardly have supported the violence of the friction which appears to have been applied, and would not, I think, have been capable of receiving such a polish."†

"The method adopted in printing wood-engravings of saints and other subjects was anciently the same as that used in the manufacture of cards . . . the friction of a rubber, made of hair, or of pieces of cloth, was then applied to the paper, which was thus rubbed backwards and forwards till the impression of the engraving was transferred to the paper. The traces of this operation will readily be discovered by any person who examines our ancient wood prints, and the old books of devotional representations, printed only on one side of the leaf; the back of the paper being generally found polished, and sometimes soiled by the process of rubbing off the impression."‡

A similar process is used at the present day by our artists in wood-engraving, by which such exquisite proofs of their work are given us as put to shame the utmost efforts of our press in working prints; and particularly when they are worked along with type. Engravers, wanting only two or three specimens, can lay on the ink with small delicate balls made of satin, beating repeatedly till the lines are equally coloured, and even varying the beating to the various shades of the engraving. They next examine the paper (which is of that description called India, chiefly imported from China) to detect any inequalities on the surface, which, if found, are carefully picked out by the graver, or pen-knife; then, laying it cautiously on the engraving, they rub over every line with a hard tool, and giving to the heavier lines and dark shades an additional portion of friction, they bring up the various tints to the greatest degree of perfection.§ This they are enabled to do by the transparency of the paper, aided by their judgment as artists; the slightest touch of the tool being sufficient to cause the colour to appear through the paper,

* Ott. i. 34. † Ibid. ‡ Heineken, as quoted by Mr. Ottley, i. 81.

§ This process must not be tried too often, as it would soon have an injurious effect upon the finer lines of the wood.

and enable them to judge, from the reverse, when every tint is perfected. Another advantage in this process is, that the colour will appear entirely on the surface, without any distortions of the proportions from the white parts having been forced, by impression at the back, into the hollow parts of the cut, since the tooth, or burnisher, will touch or press upon those parts only which are meant to impart a colour to the paper; and also (a no less material point) will be certain to touch those parts, notwithstanding any deviation of the surface of the block from a true plane. This is a perfection we can never arrive at in press-work, although aimed at by dry parchment tympans tightly stretched, with glazed papers, silk, satin, &c., in lieu of cloth or blanket; since the pressure applied, supposing it to be perfectly equal, or brought up by overlays, will inevitably, after every iteration of impression, cause the protruding lines to indent, and the hollows to protrude, upon any substance, be it what it may, lying between the block and the platten, and thus impart a similar effect to the print: this will again have to be pressed flat, and be very likely to produce distortion both of the whites and the blacks.

I am very well aware that in some engravings an artist who has been used to cutting for the letter-press will be enabled to obviate a considerable part of this inconvenience, or imperfection, by cutting away the surface of the block, and, upon the concave parts of the surface, engraving the lighter shades and vanishing points; but it is, in all cases, at extreme hazard of the effect, and can never be attempted where the design is drawn upon the block by a superior artist, who must be followed by the engraver, every line and dot being required to be left as it is found drawn. Such was the case with the Portraits in this work. They have been admired by very eminent judges of the Fine Arts, and thought so superior as to have been esteemed the precursors of a new æra in the art, when seen in the engraver's specimens rubbed off on tinted China paper. But I tremble for the result, even by the most careful mode of Letter-press impression. Notwithstanding every expense of having a press made on purpose—the cuts being worked separately from the type—and unlimited time allowed for working off—still, the utmost anxiety prevails, lest all possible justice should not be done to the talents of the designer and the engraver, and the honour of *our* art be not adequately enhanced.

The style of art which was practised by the most ancient engravers on wood, was extremely simple. The designs from which they worked were little more than outlines; such as it was customary to prepare for those who painted on glass. The engraved blocks furnished the lineaments of the figures, and the illuminist supplied the rest. By degrees a few light hatchings were introduced, thinly scattered upon the folds of the draperies, and other parts of the figures: and occasionally, where the opening of a door, or a window, or the mouth of a cavern were to be expressed, the block was left untouched that it might print black in such places,* and thereby diminish the task of the colourist.

It was soon discovered that with further labour of the wood engraver much more might be done in this way. It was easy to represent the figure of Lucifer with its appropriate blackness, and at the same time to express the internal markings of his body and limbs by means of thin white lines, hollowed out in the block.† The ornamental borders, which often surrounded the devotional cuts of those times, were rendered more attractive to the eye by the opposition of broad white and black lines; and sometimes intermediate spaces of greater extent were enlivened by large white dots, cut out, or perhaps punched, at equal distances in the block; or decorated with sprigs of foliage, or small flowers, relieved by a similar process upon a black ground. Gradations of shadow next began to be attempted in the figures and other parts of wood-engravings, by means of white dots, differing from each other in their magnitude and proximity, according to the degrees of darkness required.‡ This mode of finishing engravings in wood appears to have been practised at Mentz, among other places, very

* See the cut of St. Christopher, mentioned in p. 24, and shown in *fac-simile*, by Mr. Dibdin and Mr. Ottley.

† See also Mr. Dibdin's *fac-simile* of an engraving of Death upon a black Horse, p. 95, vol. i., in which the Horse and a Raven are finely depicted in this manner, while the remainder of the figures in the cut are executed in outline.

‡ Mr. Ottley does not give any specimen of this kind of work, but his description is highly interesting. Mr. Dibdin supplies the one, without in the least interfering with the other. See his Decam. 2nd day, p. 61, 66, and 101, &c. I must confess (although I incur the censure of want of taste from the artists of the present day) that these speckled black grounds have to my eye a very pleasing effect, and I shall take an opportunity of introducing a vignette to speak in support of my opinion.

soon after the invention of typography, and was afterwards occasionally resorted to by the wood engravers of other countries, especially those of Paris; where, at the close of the fifteenth and the commencement of the sixteenth century, numerous small books of devotion were printed by Antoine Verrard, Simon Vostre, and others, in which the borders surrounding the pages were decorated by figures very delicately engraved, and relieved upon a black ground speckled over, with extreme nicety of workmanship, with minute white dots, such as have just been described. These innovations in the art of wood-engraving, were such as involved but little additional labour or difficulty in the execution, at the same time that they were calculated to give to the decorations of books a shewy effect; but the artists of Germany soon found them to be incompatible with the purpose of imitating, by wood cuts, the appearance of their original designs; and the former and more simple method was again resorted to.

"It appears to have been the ancient practice of those masters who furnished designs for the wood engravers to work from, carefully to avoid all cross-hatchings, which, it is probable, were considered as beyond the power of the xylographist to represent. Wohlgemuth perceived that, though difficult, this was not impossible; and in the cuts of the Nuremberg Chronicle, the execution of which, besides furnishing the designs, he doubtless superintended, a successful attempt was first made to imitate the bold hatchings of a pen-drawing, crossing each other, as occasion prompted the designer, in various directions. To him belongs the praise of having been the first who duly appreciated the powers of this art; and it is more than probable that he proved with his own hand, to the subordinate artists employed under him, the practicability of that style of workmanship which he acquired.

"Engraving in wood now offered inducements to its practice, never before contemplated, and the greatest masters saw in it a sure method of multiplying their finest and most studied designs. Durer, as I have already said, early applied himself to the study and further advancement of an art which at once promised to reward his labours with fame and fortune, and so well had nature qualified him for the task, that before the termination of the fifteenth century he produced his series of wood cuts of the Apocalypse; a work which, it cannot be doubted, was received

throughout civilized Europe with astonishment and universal applause."* Albert Durer and Holbein became the great and finished artists of the xylographic school, towards the close of the fifteenth century. Durer was a native of Nuremberg, born in the year 1471. His father was a goldsmith, to which profession, as I have already shown, we are indebted for the art of printing from engravings. Albert's genius aspired still higher; and at the age of fifteen he was placed under Wohlgemuth to study the arts of design and painting; he continued under his tuition till 1490, when he commenced his travels for further improvement. He continued abroad for four years more, when he returned, and settled himself by marrying, but without much good fortune in his choice, as his wife proved an adept at *cross-hatching* all the remainder of his life. In 1506, we find him a painter of celebrity at Venice; and in 1520 he travelled in the Low Countries. In 1524 he returned to his native city, where he continued to practise the various arts of which he became so great a master, till his death in 1528—aged 57. He is, perhaps, the first instance we have in bibliomanic history of suffering under the fashion so prevalent in later days, of literary piracy. Marc Antonio, a Venetian artist, admiring the works of Albert, immediately imitated them on copper, marking his plates, the better to deceive, with Albert's cipher. I had an opportunity, within a few days, of inspecting one of these literary forgeries, the resemblance to the style of Albert is very close.

"Albert Durer, even in his life time, enjoyed the reputation of being the greatest master of the German school. Early initiated into the secrets of arts and sciences, he was at once a painter, an engraver, a sculptor, an architect, and a mathematician. . . . . He was on terms of intimacy with many of the principal artists of the time, and among the rest, with the celebrated Raffaelle Sanzio, with whom he made a frequent interchange of prints and drawings; and who is reported to have always spoken of his abilities in terms of high commendation."†

Mr. Ottley has been enabled to give a rich treat to those who can feel an interest in this study, by presenting in his book, specimens of the works of this great artist, PRINTED FROM THE ORIGINAL BLOCKS THEMSELVES! There are four, viz., "The

* Ottley, p. 754—5. † Ibid. ii. 712.

Last Supper"—"Christ before Pilate"—"Christ taken down from the Cross"—and "The Ascension." After the jealous and doubting eye has been so long dwelling on the beautiful *fac-similes* given in Dibdin's and Ottley's works, I know of nothing which can prove so refreshing as the sight of an impression from the REAL and TRUE plate or block of a venerated artist. The paper, and the ink, and the press-work may be somewhat different, but there is a seeming sacredness about the material which was touched by the mortal hand of the artist himself, three hundred years since, the effect of which is more easy to be conceived than described.

Holbein was no less a finished artist than Durer: he designed and engraved on wood with incredible delicacy. In 1538 the celebrated "Dance of Death" was printed at Lyons, small 4to, forty-one cuts—*fac-similes* of "The Bride,"* "The Nun," and "The Knight,"† are given by Mr. Dibdin and Mr. Ottley; the design and execution are most beautiful. Mr. Ottley, who possesses a copy of the first edition of the work, describes it as printed with the greatest clearness and brilliancy of effect, on one side of the paper only.

A brief outline of the origin and early progress of Xylographic Typography, that is, of printing words, sentences, or pages, from wooden plates or blocks, having now been given, the reader will understand, that the figures or words on such plates or blocks, were represented by having all that was *not to appear in print,* cut away below the surface or plane containing that which *was to appear;* and that by covering the prominent parts with colour or ink, prints might be transferred to any attenuated even substance, such as paper, by means of friction or pressure: and that these prints might be repeated by the same process, from the same block, so as to obtain any quantity of impressions.

"It seems strange that the Romans, who were as sagacious a people as any in the world, should not as easily have fallen upon the use of separate types, in which the whole art of modern printing consists, from such signets as those described in the preceding pages, as the later ages did from wooden blocks, which were plainly no other than larger works of the same kind.

Cicero, in his book "De Natura Deorum," has a passage from

* Dib. Dec. i, 40. † Ottley ii, 763.

which Toland supposes that the moderns took the hint of printing. That author orders the types to be made of metal, and calls them *formæ literarum*, the very words used by the first printers to express them. It is plain from Virgil, that brands, with letters of the owner's name, were in use in his time for the marking of cattle. And we have an account of the same artifice that is now used for the painting of cards being used by the Emperor Justin, who could not write; there was a smooth board, with holes cut through it, in form of the letters of his name; and when he had occasion to sign any thing, this was laid on the paper, and he marked the letters with a pen or stylus dipped in red ink and directed through the holes." Philos. Trans. No. 479, p. 393.

The mode of multiplying copies having been fully accomplished by means of printing from carved blocks, this at length gave birth to the idea that every letter and character throughout a work might be made capable of re-arrangement, and thus be brought to form all the succession of pages belonging to any work, instead of doing it by the interminable labour of cutting in solid wood every letter, figure, and page, that required to be printed. Thus, by a seemingly natural gradation of human ingenuity, the cutting or engraving of whole pages on entire blocks was followed by the improvement of cutting the letters separately upon wood; the next step after which, was, to engrave them separately upon metal; and this was succeeded by forming matrices and moulds for casting each single letter.

After the ground-work of the art had been completed, its rise towards perfection was more rapid, perhaps, than that of any other art or science whatsoever; for little more than thirty years elapsed from the time of printing the *Biblia Pauperum* (which will be hereafter described) from wooden blocks, to the time when Gutenberg and Schoeffer had perfected their cast metallic types; as may be seen in the following chronological statement of the progress of the art:—

Printing from Blocks was invented about the year	1422
. . . . . Letters cut separately on Wood .	1438
. . . . . Letters cut separately on Metal .	1450
. . . . . Letters cast in Moulds	1456

In my attempt to give, from the best materials I am able to collect, a short account of the successive gradations of the Printing

Art, until its arrival at the acme which it has since attained I shall be much assisted by the labours of my friend, the Rev. Mr. Horne. His "Introduction to Bibliography," is the most judicious selection from the greater works of those who have written upon this interesting subject, that is to be met with; and so general a compilation is it of every useful and curious information, that no printer who studies his profession as a science, nor any amateur of that science, ought to be without it. By his permission, and the liberality of the publishers, I am enabled to give from it, representations of the *Biblia Pauperum*—the *Speculum Humanæ Salvationis*—and the Monograms of the first English Printers: these I could not otherwise have obtained, without retracing and engraving from the originals; and I trust I shall stand excused, if, with the usual liberty of book-makers, I further avail myself of the permission which has been given, and make use of the same intelligent work to insure some interest to my descriptions and general information concerning the progress of the art.

I have already shown the degree of certainty with which the origin of book-printing may be ascribed to the prior art of engraving upon wood: and I now come to treat somewhat more historically upon the principal stages of the art. At the end of the fourteenth, and at the beginning of the fifteenth century, the Italians, Germans, Flemings, and Dutch, began to engrave on wood and copper. The advances which had been previously made connect themselves more with the art of Sculpture, than with that to which our inquiry is more immediately directed. The inscriptions in relief upon monuments and altars, in the cloisters, and over church-porches, served as models or designs for block-printing; and the text on painted windows is composed of letters much resembling those in the Books of Images.*

* The example, nearest home, that I have met with of these inscriptions, is in the Church of Saint Mary, at Bury Saint Edmund's. This church was erected, first in 1005, rebuilt in 1424 to 1433. The roof of the nave is said to have been constructed in France, and put together after it was brought to England. The timbers, which are much admired for lightness and elegance, are visible to the curious spectator, at the expense of a little stiffness in his neck, or giddiness in his head. They are adorned with inscriptions and carvings, which from their height fortunately escaped the fury of the puritanical zealots of the seventeenth century. At the end of the South aisle, is a monument for one John Baret, who died in 1463; the ceiling over where he lies is curiously ornamented and carved;

Lee sc

Rchnit speculū humane saluacōsus
In quo patz casꝰ hoīs ꝛ modꝰ tepadoīs
In hoc speculo potest homo cōsiderare
q̄ ob causā creator oīm decreuit hoīem creaē

Mulier autē ī paradiso est formata
De costis viri dormientis est parata
Deꝰ ātē ipsā quodamō sup vir hoē stauit
Q̄ enā ī loco voluptatis plasmauit

FAC SIMILE OF THE BIBLIA PAUPERUM

To face Historical Introduction, Sec. ii.

[*J. Lee, Sculp.—T. C. Hansard, Typ.*

The Daughter of Sion crowned by her Spouse.

Laus anime vere
Sponsum bene sensit habere.

The Reward of the Righteous. Christ is about to place a Crown upon the head of a person who is kneeling before him.

Tunc gaudent anime sibi quando bonum datur omne.

Saint John listening to the converse of an Angel.

Sponsus amat sponsam
Christus nimis et speciosam

As the Art of Engraving on Wood proceeded, its professors composed historical subjects, with a text or explanation subjoined. The Books of Images are of this description, the pages being placed in pairs facing each other; and as only one side of the leaves is impressed, the blank pages come also opposite to one another; which, being pasted together, give the whole the appearance of a book printed in the ordinary way, on both sides of the paper. This, even to the present day, is the mode of book-printing in China. The text corresponding to the figures is placed sometimes below; sometimes on the side; and not unfrequently proceeding, as a label, from the mouth of the figure or personage.

In Bibliography these books are described under two classes; namely, *Books of Images* WITHOUT *Text;* and *Books of Images* WITH *Text*. Of the former class the most celebrated specimen is the volume called THE BIBLIA PAUPERUM; and of the latter, the SPECULUM HUMANÆ SALVATIONIS is in highest estimation. The *Biblia Pauperum* is acknowledged to be a very ancient book. The few copies of it which remain in existence are, for the most part, either imperfect, or in very bad condition. This will not excite much surprise when it is considered that it is a kind of Catechism of the Bible, which was executed for the use of young persons, and the common people; and hence its title, BIBLIA PAUPERUM, *the Bible of the Poor*. This was the only part of the sacred book at that time within the reach of the commonalty, a complete bible in manuscript being then worth a hundred pounds of our money. This will sufficiently account for the destruction of almost every copy of the *Biblia Pauperum* by repeated use, and for the mutilated state of the few copies that remain. The work consists of forty leaves of a small folio size, each leaf containing a cut on wood, with extracts and descriptive sentences referring to

his motto, in the old-formed character of which I have just spoken, Grace me Govern (a wit once said, he supposed Grace was his wife's name), and the initials of his name, I. B. are many times repeated. It is true this date may appear a few years subsequent to the beginning of the fifteenth century, but the character is in perfect unison with that in other parts of the roof.—" At Rouen, on the outside of the highest steeple of the Great Church, there is the word DIEU engraved in huge golden characters almost as tall as myself."—7 Sep. 1619.—Howell's Familiar Letters, p. 36, Ed. 1737.

the subjects of the cuts. Each page contains four busts—two at the top, and two lower down; together with three historical subjects. The two upper busts represent certain prophets, or other eminent persons, whose names are added beneath them. Of the three historical subjects, the *chief type*, or principal piece, is taken from the New Testament; and occupies the centre of the page, between the two *anti-types*, or subordinate subjects, which are allusive to it. The engraving here presented, by the favour before acknowledged, is a copy of the fortieth plate. The two busts placed in the middle of the upper part of the page represent David and Isaiah between two texts of the Bible, with brief explanations. The former of these, on the left of the Prophets, is from the Song of Solomon, chapter iv, 7.

> *Legitur in Cantico Canticorum, quarto capite, quod sponsus alloquitur sponsam, et eam sumendo dixit: "Tota pulchra es, amica mea, et macula non est in te. Veni, amica mea, veni, coronabere." Sponsus verus iste est Christus, qui in assumendo eam sponsam, quæ est anima sine macula omnis peccati, et introducit eam in requiem æternam; et coronat cum coronâ immortalitatis.*
>
> In the fourth chapter of the Song of Solomon it is read, That the bridegroom addresses the bride, and receiving her, says, "Thou art all fair, my love, and in thee is no spot. Come, my love; come, thou shalt be crowned." The real bridegroom is Christ, who in receiving the bride, which is the soul without spot of sin, also conducts her to eternal rest, and crowns her with the crown of immortality.

The second passage, on the right of David and Isaiah, is partly taken from the Book of Revelation, and runs thus,

> *Legitur in Apocalypsi xxi° capite, quod angelus Dei apprehendit Jhoannem Evangelistam cum esset in Spiritu, et volens sibi ostendere archana Dei, dixit ad eum, "Veni, et ostendam tibi sponsam, uxorem agni." Angelus loquitur ad omnem generationem ut veniant ad auscultandum in sponsum, agnum innocentem Christum animas innocentes coronantem.*
>
> In the twenty-first chapter of the Revelation it is read, That the Angel of God took John the Evangelist when he was in the Spirit, and willing to show him the mysteries of God, said to him, "Come, and I will show thee the bride, the wife of the Lamb." The Angel speaks to every generation, that they come and hearken to the bridegroom, the pure Lamb Christ, crowning innocent souls.

Under the bust of David, which is indicated by his name, is a scroll proceeding from his hand, inscribed,

> *Enim tamquam sponsus dominus procedens de thalamo suo.*
>
> Even as a bridegroom coming out of his chamber, Ps. xix, 5.

Beneath the corresponding compartment containing a bust of Isaiah, is the word *Ysaye*, and also the ordinal number lxi,* referring to the sixty-first chapter of that prophet; and from the hand of the figure proceeds a label containing,

Tamquam sponsus decoravit me coronâ.

As a bridegroom he hath adorned me with a crown. lxi, 10.

Towards the bottom of the plate are two other busts, similar to those at the top, and which represent the prophets Ezekiel and Hosea. From the figure that occupies the left-hand compartment extends a scroll, at one end of which is the word *Œzeciel*, with a number referring to the twenty-fourth chapter; and in the other part are the words

Corona tua capite ligata fiet, et calciamenta in pedibus.

Thy tire shall be bound upon thine head, and thy shoes upon thy feet. xxiv, 17.

The corresponding scroll attached to the other figure contains, at one end, *Ozee*, with a reference to the second chapter; and in the other part are the words,

Sponsabo te mihi in sempiternum.

I will betroth thee unto me for ever. ii, 19.

In the central compartment, between the upper and lower busts, is depicted the Type, or principal subject. It represents the reward of righteousness in heaven; the designer having introduced the Redeemer as bestowing the Crown of Life upon one of the elect Spirits. The antitype, on the left, is the Daughter of Zion crowned by her spouse, with the following Leonine verse underneath;

℣ { *Laus anime vere,*
Sponsum bene sensit habere.

O soul divine!—it rightly knew,
To have the spouse was glory true.

The other antitype, on the right, represents an Angel addressing St. John; having beneath it this verse;

℣ { *Sponsus amat sponsam,*
Christus nimis et speciosam.

And Christ, the bridegroom, far above
Conception, the fair bride doth love.

and in the bottom space is this verse;

℣—*Tunc gaudent anime sibi quando bonum datur omne.*

Then souls rejoice with great delight,
When given is the diadem bright.

* The letters and numbers in this and other places have been a little varied, by persons, perhaps, that took copies from the originals not thoroughly understanding the characters.

The cuts are all marked in the centre of the upper compartment by letters of the alphabet; and hence we may consider the origin of printers' signatures to have belonged to the period when the *Biblia Pauperum* appeared. In this work the letters follow each other, in two sets, each proceeding from A to V only. The first series being completed, the second is distinguished by two points, as .A. .B. &c. The print here given being a copy of the fortieth, it is marked as .V. of the second series.

Some difficulties have arisen among bibliographers as to the precise time at which the first edition of the *Biblia Pauperum* was executed. Heineken, an author who examined with minute attention the few copies of this work which have escaped the wreck of time, discovered five different editions; the fifth being found to contain ten plates more than any of the others.—Mr. Dibdin has supposed the date to be about 1450; but Mr. Horne thinks that it is twenty or thirty years older.—The *fac-simile* annexed will show the execution of the blocks to have been very coarse; and the form of the letters, compared with specimens in other books of which the date is better ascertained, is very gothic, and their proportions are not at all well preserved. Upon comparison with some of the *fac-similes* in the *Bibliotheca Spenceriana,* supposed to have been executed between 1420 and 1430, the similarity of coarseness in the shape of the letters will render it probable that the *Biblia Pauperum* is nearly of equal antiquity. The edition here particularly spoken of is more valuable than any of the others, being that which contains the additions before mentioned. It may be amusing to those unacquainted with the estimation such ancient pieces of printing bear among the virtuosi, to see the prices that have been given for copies of the *Biblia Pauperum.*

		£.	s.	d.
1753 at the sale of	M. de Boze, 1000 livres . . .	43	15	0
1769	M. Gaignat, 830 livres	36	6	0
1791	M. Paris	51	0	0
1813	M. Willett	257	0	0
1818 or 1819 . . .	Duke of Marlborough	52	10	0

A copy of this book, formerly Gaignat's, is in his majesty's library. Another copy is in the library of Earl Spencer. The Bodleian and Corpus Christi College libraries, at Oxford, contain each a copy: and there is also one *said* to be in the library of

Bennett College, Cambridge,*—one in the Hunterian Museum Glasgow (very imperfect)—one in the Royal library, Paris—and one in the Public library of Basle.

The one called the Marlborough Copy is reckoned the finest in existence; each leaf of which, in its original form and dimensions, has been carefully inlaid upon large drawing paper; and it is finely bound in blue morocco. It was, as before stated, purchased in 1813, for his grace, when marquis of Blandford, out of the Merley library of Ralph Willett, esq. for two hundred and forty-five guineas; and it was sold, together with the "White Knight's Library," in 1818, for fifty-two guineas; when Mr. Triphook, the bookseller, was the purchaser. "In truth it seems," says Mr. Ottley, speaking of this book, "to hold a distinct place midway between the ordinary books printed entirely from engraved wooden blocks, and the first specimens of typography in its mature state." P. 154.

The Second Class of Xylographic Works to be described consists of *Books of Images* WITH *Text*. Of all the ancient books of images which preceded the invention of the present mode of printing, the *Speculum Humanæ Salvationis*, or, as it is generally termed, the *Speculum Salutis*, is confessedly the most perfect both with respect to design and execution. This compilation is a collection of historical passages from the Scriptures, with a few from profane history, which have some relation to the scriptural subjects. It is ascribed to a Benedictine monk of the thirteenth or fourteenth century, styled Brother John. So popular was this "Mirror of Salvation," that it was translated into German, Flemish, and other languages; and very frequently printed. Two Latin editions are extant, without date. The impressions in both are sixty-three in number, and are executed from the same blocks; but in that which is reputed to be

* I have searched Bennett College library in vain for this book. In the library of *ordinary use* there is a catalogue, but no such work is mentioned in it. In their *close library* of MSS. and old books, which is said to be the most valuable of any in the University, they (strange to tell!) have no catalogue. To this collection access cannot be had but by the presence and keys of three of the seniors of the college. Every assistance, however, was readily and politely conceded, with permission to continue my search as long as I chose; but all the information I could obtain amounted to nothing more than, that the muniments of the college, with the ancient books and MSS. were therein deposited; and consequently, without a catalogue to guide me, I had little chance of finding a *Biblia Pauperum*.

the more ancient, the explanations of twenty-five, not in regular succession, are printed from entire wooden blocks, while the remaining thirty-eight, and the five leaves of preface, are wholly executed with fusil type.*

The circumstance just related appears to me as decisive as circumstantial evidence can be, of the date of the performance. That great step towards perfecting the Art of Printing, namely, the invention of fusil types, appears pretty well ascertained to have been in the year 1456. Twenty-five of the leaves of the *Speculum* were printed before the casting of types was invented; and thirty-eight leaves, together with the preface to complete the book, had the advantage of the invention. The second Latin edition differs from the former only in having the whole of the explanatory text printed with fusil types exactly resembling those employed for part of the letter-press of the first edition.† In the Flemish or Dutch editions, the text is printed entirely with moveable type.

I shall now give (partly from the same source) a description of the specimen referred to. It is divided into two compartments separated by a small pillar. The compartment on the left exhibits the Fall of Lucifer and his Angels. In the upper part is represented the Son of God denouncing vengeance against the rebellious powers; while the angels by whom he is surrounded are thrusting them headlong down to hell, whose jaws are widely distended to receive them. Horror and anguish are depicted in the countenances of the fallen spirits, who are delineated in the most grotesque attitudes imaginable. This piece might serve (if so grave a subject would admit of it) as a caricature illustration of the sublime description which Milton has given‡ of the defeat and precipitation of Satan and his angels into the bottomless abyss. Beneath the compartment containing this representation is inscribed *Casus Luciferi* (the Fall of Lucifer.)—In the compartment towards the right hand is represented the creation of Eve, who appears springing out of the side of Adam as he sleeps, while the Creator is introduced as receiving her, and communicating to her the divine will. The inscription beneath the compartment containing this design is, allowing for abbreviations, as follows;

Deus creavit hominem ad ymaginem et similitudinem suam.

God created man according to his own image and similitude.

---

* Horne, p. x. † Ibid., p. xi. ‡ Paradise Lost, b. vi. ver. 745—856.

Beneath each compartment is a verse relative to the general subject of the cut under which it is placed. That which is subjoined to the Fall of Lucifer is as follows:

Incipit speculum humanæ salvationis,
In quo patet casus hominis et modus reparationis:
In hoc speculo potest homo considerare,
Quam ob causam Creator omnium decrevit hominem creare.

Man's fall this mirror of salvation first bespeaks;
It open, then, the means of his redemption breaks:
Thus man enabled is herein to understand,
Why the Creator did to make mankind command.

The last line of the verse attached to the cut representing the Creation of woman has lost several letters; and a gentleman who has succeeded in elucidating several other portions of these curious documents, which have heretofore defied the skill of the learned, has supplied the part between brackets, in the following explication, as the *probable* words of the original. As this could not be done by consulting a perfect copy, a judgment formed from the context, as to what was wanted, was the only means of supplying the defect; the insertion is, therefore, submitted with diffidence; for, besides its mutilation, other parts of the verse contain but very Gothic Latin, so that there was more than ordinary difficulty in deciphering and eliciting the presumed sense, which has been attempted in this and other parts of the present work chiefly with the view of lending a trifling lift to such as are more immediately interested in the literary curiosities of those darker ages.

Mulier autem in Paradiso est formata
De costis viri dormientis est parata
Deus animationem ipsam quo damno super virum hodie flavit
Q[uosque] etiam in loco voluptatis plasmavit.

Even in Paradise was the first woman made;
Out of the ribs was she of sleeping man convey'd;
God, for the loss in man, then her with soul inspired,
And in a place of bliss brought forth all things desired.

The *fac-simile* in Horne was traced from a copy that belonged to Mr. Willett, and for which three hundred guineas were given by Mr. Singer. The marquis of Blandford also gave the same sum for a copy.

Mr. Ottley seems to have formed a decided opinion that the *Biblia Pauperum*, and the *Speculum Salvationis* were both executed by the same artist.

§ 2.—*SECOND PERIOD.*

THE Books of Images, then, which have been the subject of the foregoing section, may, with great probability, be considered the earliest attempts at book-printing. Let us now trace on to the next step towards the general application of the art, which, it will be recollected, was the cutting of separate types in order to render them moveable, and consequently capable of being used for various words, sentences, &c., so as to be convertible to the printing of different works. This improvement was accomplished by John Gutenberg, of Mayence, or Mentz, about the year 1438.

"It is wonderful," says Lemoine, "but it is true, that the only art which can record all others, should almost forget itself."——"The Art of Printing, if it be not a mathematical science, is yet so perfectly scientific as to come very near the meriting that appellation: hence, so little room has been left by the first inventors for improvement, that, for a long space of time, no artist has gone beyond the settled rules of proportion established."

That the invention of an art so curious in its nature—so beneficial in its consequences—and of no earlier date than the fourteenth century, should have been the boast and the subject of contention, not of individuals only, but of cities and countries, is less surprising than that the inventor should have neglected to secure to himself the honour of the discovery. Public gratitude might have been expected to perpetuate at least the name to which public intelligence owed such infinite obligation. But neither this, nor personal ambition, has prevented obscurity from nearly concealing the author, as well as the time and place of his birth.

Posterity, however, has not been negligent in rescuing from oblivion the name of him to whom the world is indebted for this art. And though difference of opinion may still exist, owing to the multiplicity of contradictory evidence; yet, from an impartial inquiry, there will, I trust, be discovered, a body of testimony sufficient to produce conviction, and to completely satisfy the judgment of those who candidly investigate the question.

To us of the present day, indeed, who are tenacious only of the freedom of this inestimable art, but in no respect connected with its original discovery, the question is of less importance than

to those cities which contend for the sake of investing themselves with the honour of the invention. But that which is every day growing more and more valuable to the whole moral world, and whose ultimate consequences, both as they concern religion, and embrace every thing that belongs to human institutions, afford matter for speculation of the deepest interest, is worthy of our highest regard: and thus it is that the History of Printing becomes to us an object of the most laudable curiosity.

The chief causes to be assigned as having tended to occasion doubts with whom the art actually originated, may be thus briefly summed up:—First, the real inventor would be unable to confine the secret wholly to himself, and advantage would be taken by such as had opportunities of learning any particulars concerning it during its experimental progress and imperfect state, to arrogate to themselves the merit of being inventors of that to which they contributed nothing, but as mechanical agents.—Secondly, for a time, printing was as much the *counterfeit* of, as the *substitute* for writing; being, as it were, the *fac-simile* of the hand-writing of the most approved scribes of those times: and as large sums were paid for manuscript copies of choice works, the first printers were desirous to sell their printed copies as manuscripts; hence, lucrative motives might operate to prevent the founder of the art from divulging himself to the world as the author of so great a novelty.—Thirdly, the want of sufficient funds for his purpose induced the original projector, and those artists immediately concerned with him, to engage jointly with men of property in the practice of the art; and their names thus becoming blended, the merit of invention became liable to be falsely ascribed.—Fourthly, the commencement of book-printing could not have been earlier than the year 1422, nor later than 1442; and it is probable that within this period presses were established in various parts of Europe: and as intercommunication between distant countries was not then very easily effected, each printer and each city might claim the honour of the invention without much risque of immediate detection.

These appear to have been some of the principal causes that conduced to render it doubtful in whom, and at what place, the art had actually its origin. But an invention so extraordinary

could not be entirely secreted for any great length of time; and the following incident may be supposed to have much tended to its general notoriety. An artist, upon offering for sale a number of bibles, which so nicely resembled each other in every particular that they were deemed to surpass human skill, was accused of witchcraft, and tried in the year 1460.

The Reverend Archdeacon Coxe, in his History of the House of Austria, gives the following description of the Invention and Art of Printing.—" It took its rise about the middle of the fifteenth century, and in the course of a few years reached that height of improvement which is scarcely surpassed even in the present times. The invention was at first rude and simple, consisting of whole pages carved on blocks of wood, and only impressed on one side of the leaf; the next step was the formation of moveable types in wood, and they were afterwards cut in metal, and finally rendered more durable, regular, and elegant, by being cast or founded.

" The consequence of this happy and simple discovery was a rapid series of improvements in every art and science, and a general diffusion of knowledge among all orders of society. Hitherto the tedious, uncertain, and expensive mode of multiplying books by the hand of the copyist, had principally confined the treasures of learning to monasteries, or to persons of rank and fortune. Yet even with all the advantages of wealth, libraries were extremely scarce and scanty; and principally consisted of books of devotion, and superstitious legends, or the sophistical disquisitions of the schoolmen. An acquaintance with the Latin classics was a rare qualification, and the Greek language was almost unknown in Europe; but the Art of Printing had scarcely become general, before it gave a new impulse to genius, and a new spirit to inquiry. A singular concurrence of circumstances contributed to multiply the beneficial effects derived from this invention, among which the most considerable were, the protection afforded to literature and the arts by the states of Italy, and the diffusion of Greek learning by the literati who sought an asylum in Europe after the capture of Constantinople. A controversy has arisen concerning the first discoverer of the Art of Printing, between the three towns of Haerlem, Mentz, and Strasburgh; each, from a natural partiality, attributing it to their own country-

man. The dispute, however, has turned rather on words than facts; and seems to have arisen from the different definitions of the word 'printing.' If we estimate the discovery from the invention of the principle, the honour is unquestionably due to Laurence Coster, a native of Haerlem, who first found out the method of impressing characters on paper by means of carved blocks of wood. If moveable types be considered as a criterion, the merit of the discovery is due to John Gutenberg of Mentz; and Schoeffer, in conjunction with Faust, was the first who founded types of metal. The modern improvement of Stereotype Printing may be considered as a recurrence to the first and simple principles of the art."—Coxe, vol. i, 421—422, 8vo.

I cannot find that Gutenberg was encouraged in his labours by the smiles of royal influence. This is the more remarkable, as the then reigning sovereign of Germany, Frederic III, was a monarch "deeply versed in the learning of the times; was much absorbed in his passion for letters and sedentary occupations, and attached to the study of antiquities and heraldry."* The only honorary reward which the discovery ever met with was conferred by the latter of these sciences, in granting to one Mentilius, a title of nobility. The chief and only merit of this person appears to have been that of becoming rich, by adopting the art, after it had been established, as his own: for the diploma contains not a word of the invention of printing. The same emperor also permitted printers to wear gold and silver, and granted coat-armour to the *Typothetæ* and *Typographi*, to perpetuate the honour of the discovery. This armorial bearing is still claimed by the professors of the art in Germany. To their Printer's Manual is attached the engraving of which the vignette in the title-page of this work is a reduced copy. The German engraving has the Latin inscription, "Insigne Typographorum. Ex dono Frederici Imperat. Rom." —The reign of Frederic III was from 1440 to 1493—Gutenberg flourished from 1436 to 1466.

John Gutenberg, who is supposed to have been born at Mayence, in the beginning of the fifteenth century, settled at Strasburgh about the year 1424, or perhaps rather earlier. In 1435 he entered into partnership with Andrew Drozhennis (or Dritzehen), John Riff, and Andrew Heelman, citizens of Stras-

* Archdeacon Coxe.

burgh, binding himself thereby to disclose to them some important secrets by which they should make their fortunes. The workshop was in the house of Andrew Dritzehen, who dying, Gutenberg immediately sent his servant, Lawrence Beildech, to Nicholas, the brother of the deceased, and requested that no person might be admitted into the workshop, lest the secret should be discovered and the formes stolen. But they had already disappeared; and this fraud, as well as the claims of Nicholas Dritzehen to succeed to his brother's share, produced a lawsuit among the surviving partners. Five witnesses were examined, and from the evidence of Beildech, Gutenberg's servant, it was incontrovertibly proved that Gutenberg was the first who practised the Art of Printing with moveable types; and that on the death of Andrew Dritzehen he had expressly ordered the formes to be broken up and the characters dispersed, lest any one should discover his secret. The result of this lawsuit was a dissolution of partnership. The document containing an account of this trial, together with the sentence of the magistrates of Strasburgh, is dated December 1439. It was published in the original German language with a Latin version.

In order to prevent any misunderstanding that might arise from an apparent confusion of names, in reading any early histories of typography, it may be useful to notice that, in the various documents necessary to be referred to, JOHN GUTENBERG is variously called *Johannis Gutenberg—de Moguntia*—Gensefleisch, alias nuncupatus Gutenberg de Moguntia—Gensefleisch junior, dictus Gutenberg—Gansfleisch, dictus Sulgeloch vel Sorgeloch.*

Gutenberg, after having sunk the money embarked by himself and his partners in the effort at Strasburgh, went, in 1445, to his native city Mentz, and resumed his typographic labours. Here, in 1450, he engaged in a new partnership with JOHN FUST, an opulent citizen, who advanced him the capital necessary to establish a new printing-office, at which, after many smaller essays in the art, was printed, for the first time, in 1450, in large cut metal types,† the celebrated *Latin Bible* so much disputed upon among bibliographers; the expenses incident to which work being very

* Mogunce, Mogounce, Moguntia, Mayence, were the ancient names of the city called MENTZ.

† Nich. Orig. Pr. p. 85.

considerable, Fust instituted a suit against Gutenberg, who, in consequence of the decision against him, was obliged to pay interest, and also part of the capital that had been advanced. This suit was followed by a dissolution of partnership, and the whole of Gutenberg's printing apparatus fell into the hands of John Fust. Palmer in his General History of Printing* mentions the incident relative to the origin of printing, and the story of this Bible, alluded to in p. 42, which are supposed to have given rise to the celebrity of that personage whose name is so generally coupled with the black art, namely, *Dr. Faustus.*† Since much nearer to our own times, we have witnessed a belief in the existence and power of witchcraft acted upon even in our criminal courts of justice, by one whom we consider to have possessed great and splendid talents, namely, Judge Hale, I see no reason to doubt the anecdote concerning Fust, and shall therefore give the legend, either for truth or amusement, as the reader may choose to take it. See "Fust," &c., note to chap. v. See also State Trials, vol. vi. p. 647.

Another specimen from Gutenberg's press was discovered a few years since by Mr. Fischer, among a bundle of old accounts, in the archives of Mentz. It is an almanack for the year 1457, which served as a wrapper for a register of accounts for that year. This would most likely be printed towards the close of 1456, and may consequently be deemed the most ancient specimen of typographic printing extant with a *certain* date.

Fust having, by virtue of the judgment given Nov. 6th, 1455, become possessed of Gutenberg's typographic apparatus, began, with the assistance of Peter Schoeffer, or Gernsheim, an industrious young man of inventive talents, to print on his own account. Schoeffer had been probably initiated in the mysteries of the art

* Samuel Palmer was a printer in London. He was assisted in his work by that singular but learned character, George Psalmanazar. By this authority the origin of printing is fixed to the year 1440; and the invention of types to the years between 1440 and 1450.

Mr. Palmer, the reputed author of a History of Printing, which was in fact written by Psalmanazar. Lemoine, p. 80.

† John Faust or Fust, is by many supposed to have derived his name from *Faustus*, happy; and Doctor *Faustus* seems to carry an air of grandeur in the appellation; but very erroneously so; for *John Faust*, or *Fust*, is no more than *John Hand*, whence our word *fist*.—Nich. Orig. of Pr. 59 [B.]

during the continuance of the former partnership. Their first publication was a beautiful edition of *The Psalms*, finished August 14th, 1457, soon after Fust's separation from Gutenberg. This is the first book known to be extant which has *the name of the place where it was printed*, with the name of *the printers*, as well as *the date of the year* when it was executed.

From the short time that elapsed between the dissolution of partnership that had subsisted between Gutenberg and Fust, and the date affixed to the above-mentioned edition of the Psalter, there is reason to believe that the characters employed in its execution were all ready at hand; and that they had been completed by Gutenberg, previous to his rupture with Fust. In fact, it does not seem likely that Peter Schoeffer, though he is admitted to have improved the art of Letter-founding, could have prepared the instruments he invented for casting letters, and have cast the characters necessary for printing so considerable a work, in the short space of eighteen months. Another argument against Schoeffer with regard to this work, is, that the large initial letters of his edition of the Psalter had already been employed in former impressions which were indisputably the work of Gutenberg. The initial letter B, of the first psalm, forms a beautiful specimen of the art in its early progress. It is richly ornamented with foliage, flowers, a bird, and a greyhound. It has been justly observed, that the artists employed on the work were both well-skilled and well-practised in their profession; and that the art of engraving was no longer in its infancy. Various engravings and *fac-similes*, coloured, of this letter, are to be met with. Horne has a neatly-engraved copy of it in black. He says, the letter itself is in *a pale blue* colour; the ornaments in which it is placed are *red;* and the figures and flowers are *transparent and white* as the vellum on which it is printed.

In the *Bibl. Spenceriana*, this letter is given with a few lines of the text with these colours reversed thus—the letter itself *red*, the ornaments *blue*. However, I believe both may be right; for it is acknowledged that in this and many other instances, the various editions, and even copies of the same edition, are varied in the colour of their ornaments.

Ackerman, in the frontispiece to Senefelder's History of Lithography, has given a copy of the plate mentioned above, as a spe-

cimen of lithographic printing in colours, which has a very good effect.

Although the initial letters of this Psalter were engraven on wood, yet the rest of the volume is certainly printed with metal types, the invention of which has by some authors been ascribed to Peter Schoeffer. Trithemius, however, who was contemporary with him, asserts, on the contrary, that Gutenberg and Fust invented the art of casting characters in metal which they had before been obliged to cut with the hand; but that Schoeffer discovered a more expeditious method, which further contributed to the perfection of the art. It seems evident, therefore, that the art of founding metal characters was invented by John Gutenberg; and that it was afterwards perfected by Schoeffer, who contrived punches for striking the matrices. For this last improvement Fust rewarded Schoeffer by giving him his only daughter in marriage.

We have under the firm of Fust and Schoeffer, the *Psalter* of 1457, and a reprint of the same work in 1459.—*The Rationale Durandi*, 1459—*Clementis Papæ Constitutiones*, 1460—*Biblia Latina*, 1462—*Liber Sextus Decretalium*, 1465—*Cicero de Officiis*, 1465—and a reprint of the same 1466, *quartâ die Mensis Februarii*. Fust's name appears for the last time to the *Cicero de Officiis* of 1466. All the works subsequent to that date exhibit the name of Schoeffer * alone, who continued to print till his death.

When the city of Mentz was taken by Adolphus, Count of Nassau, in 1462, Fust and Schoeffer suffered materially in common with their fellow-citizens. Their workmen dispersed themselves to seek their fortunes; and the art of printing was thus diffused over Europe.

"Mariangelus Accursius, a learned Italian, who flourished about the beginning of the sixteenth century, wrote the following lines upon the leaf of a *Donatus*,† printed at Mentz by John Fust. 'John Fust, citizen of Mentz, grandfather by the mother's side 'of John Shepherd, was the first that devised the art of printing 'with brass types, which he afterwards changed for leaden ones.

* The signification of Schoeffer, in Latin, is *Opilio;* in English, *Shepherd.*—Gutenberg signifies, in English, *Good-hill.*—Nich. Orig.

† *Donatus* was the name of the author, not of the book; and it was a grammar for boys.—Lemoine, p. 13.

'His son, Peter Schoeffer, added many other improvements to the art.'" Lemoine, p. 13.

Schoeffer died in 1502 or 1503, leaving three sons printers; the eldest of whom, John, succeeded to his father's business, and exercised his art until 1533.

"Gutenberg never used any other than either wooden, or cut metal types, until the year 1462. In 1465, he was admitted *inter Aulicos*, by the Elector Adolphus, with an annual pension; and died in February, 1468. His elder brother, Geinsfleisch, died in 1462. Their epitaphs are printed by Meerman, vol. ii. p. 154, 295, N." Nich. Orig. p. 88.

These appear to me the principal and the most valid authorities for proving who is entitled to the honour of inventing Printing and Letter-founding. Very learned and able men have, it is true, contended strongly in favour of other persons and other places. It has been claimed as an honour due to Haerlem. The Dutch historian, Hadrianus Junius,* who wrote the history of Holland, in Latin, published in 1578, claims for the city above-mentioned; assigning to one Laurentius Coster the palm of being the original founder of the art.

In order, however, to satisfy those readers desirous of understanding the authority and facts upon which Hadrianus has rested his proposition, I shall recite the substance of the fable as it stands inserted by Stower, with such opinions on the subject, from other writers, as appear to me necessary to give the question a fair opportunity of just decision.

"About 120 years ago, one Laurence Zanssen Koster inhabited a decent and fashionable house in the city of Haerlem, situated on the market-place opposite the royal palace." (This is now the Town-house.) "The name of Koster was assumed, and inherited from his ancestors, who had long enjoyed the honourable and lucrative office of Koster or Sexton to the church." (Sexton approaches the nearest in office to Koster, but is far distant in dignity as well as profit.) "This man deserves to be restored to the honour of being the first inventor of printing, of which he has

* Stower turns this at once into an English name, by saying, "*Adrian Young*," Grammar, p. 11. I should rather have taken the cognomen to signify the junior Hadrianus.

Koster.

Gutenberg.

been unjustly deprived by others who have enjoyed the praises due to him alone. As he was walking in the wood contiguous to the city, which was the general custom of the richer citizens and men of leisure in the afternoon and on holidays, he began to cut out letters on the bark of the beech" (or more probably from a piece of the inner part of the wood cut for the purpose); "with these letters he enstamped marks upon paper in a contrary direction, in the manner of a seal; until at length he formed a few lines for his own amusement, and for the use of the children of his brother-in-law" (or as some say, of his daughter's children). "This succeeding so well, he attempted greater things; and being a man of genius and reflection, he invented, with the aid of his brother, or son-in-law, Thomas Pieterison,* a thicker and more adhesive ink, as the common ink was too thin, and made blotted marks." (This Thomas Pieterison left three sons, all of whom were advanced to the regency). "With this ink he was able to print blocks and figures, to which he added letters. I have seen specimens of his printing in this manner. In the beginning he printed on one side only. This was a Dutch book, intituled *Spiegal enser Behoudenisse*. That it was one of the first books printed after the invention of the art, appears from the leaves, which are pasted together that the naked sides may not be offensive to the eyes; and none at first were printed in a more perfect manner. As this new species of traffic attracted numerous customers, thus did the profits arising from it increase his love for the art, and his diligence in the exercise of it. He engaged workmen, which was the source of the mischief. Among these workmen was one JAN, whether his surname be that of FAUST, or any other, is of no great importance to me; as I will not disturb the dead, whose consciences must have smote them sufficiently while living. This JAN, who assisted at the printing-press under oath, after he had learned the art of casting the types, setting them, and other articles belonging to the art, and thought himself sufficiently instructed, having watched the opportunity, as he could not find a better, packed up the types and the other articles on Christmas eve, while the family was engaged in celebrating the festival, and stole away with them. He first fled to Amsterdam, thence to Cologne,

* For Thomas Peter, his son; for Hadrian says, "Thomas Peter, his son-in-law."

until he could establish himself at Mentz, as a secure place, where he might open shop, and reap the fruits of his knavery. It is a known fact, that within the twelve months, that is, in the year 1440, he published the *Alexandri Galli Doctrinale*, a grammar at that time in high repute, with *Petri Hispani Tractatibus Logicis*, with the same letters which Laurens had used. These were the first products of his press. These are the principal circumstances that I have collected from creditable persons, far advanced in years, which they have transmitted like a flaming torch from hand to hand; I have also met with others who have confirmed the same, &c.—He then proceeds to relate what Nicholas Gael, his schoolmaster, used to repeat concerning the indignation of Cornelis, the bookbinder (who assisted at the printing-office of Laurens), while relating the particulars of the theft; and to confirm the whole by the account given of the fact by Burgomaster Quirinus Salesius, who asserted that he also had heard similar things from the bookbinder.—The claims of Haerlem are further asserted on the ground of internal evidence. Several copies of the *Spiegal enser Behoudenisse*, which is one of the first books from the Haerlem press, still exist, and their appearance perfectly corresponds with what has been uniformly acknowledged respecting the rudeness of the impression. Mr. Meerman, in the second volume of his *Origines Typographicæ* has favoured the public, not only with an accurate imitation of the first page of that curious book, but with specimens of the progressive improvements that were made in the Haerlem press, in subsequent editions of that work, and in several other publications. To these he has prefixed curious specimens of the first essays made by Coster, in a little book evidently composed for the use of children. They consist of the alphabet, the Lord's prayer, the creed, and two or three other prayers.

"The precise time in which printing was discovered by Laurens is not ascertained; but from circumstantial evidence it is collected, that the first idea must have been suggested to Laurens about the year 1428, or 1430. This conjecture is strengthened by the state of printing at Haerlem, in 1440. An edition of Donatus and the Latin of the Spiegal, under the title of *Speculum Salutis*, published in that year, indicate such essential improvements, that, considering the innumerable difficulties they had to surmount, several years must have been requisite to so great a degree of perfection.

"The priority of time which Haerlem has to plead is a strong argument in its favour. It was a great subject of triumph to its opponents, that the Dutch were not able to produce the edition of Donatus, printed in Holland, before that which was printed at Mentz; the only plausible excuse could be, that as the art was considerably advanced from its first rude state, the earliest, and more imperfect editions were destroyed as waste paper; this opinion is confirmed by a fact related by Seiz, who published his treatise in 1740, wherein he mentions a Dutch psalter, purchased among other books at a sale by John Enschedi. It was bound in leather, and perceiving the cover fastened to the paper within by some slips of parchment (with printing in a very old character), he detached these slips, and found, to his surprise, that they were fragments of a Grammatica Donati. The objections raised against the probability of the robbery are easily removed. It has been urged, that a printing-press, with all its implements, would be a most inconvenient thing to convey away by stealth. With the practical knowledge which the faithless servant must have acquired, and the perfect model, which he would carry in his mind, of the machine necessary for his purpose, it cannot be supposed that any thing more would be required than a few of the moveable wooden types which at that time were in use at Haerlem; these would be easily packed up at a time when the other workmen were not only absent from their work, but otherwise engaged. No difficulty could arise from their bulk to hinder their concealment through the night, nor to prevent their being carried off early the next morning, as soon as the city gates were open; and the day subsequent to the robbery being likewise a holiday, would, in all probability, ensure him a retreat before his theft would be discovered. Thus it appears that the facts related by this historian are not at all incredible. It is necessary, however, to observe, that in the confusion of names which follows this event in the history of printing, he has suffered the thief to escape, and has attributed his crime to an innocent person."—*Stow*. p. 11–15.

"Laurentius seems to have carried the art no farther than *separate wooden types*. What is a remarkable confirmation of this, Henry Speichel, who wrote, in the sixteenth century, a Dutch poem, intituled *Hertspiegel*, expresses himself thus: 'Thou first, 'Laurentius, to supply the defect of wooden tablets, adaptedst

wooden types, and afterwards didst connect them with a thread to imitate writing. A treacherous servant surreptitiously obtained the honour of the discovery. But truth itself, though destitute of common and wide-spread fame—truth, I say, still remains.' No mention is there in this poem of *metal types;* a circumstance which, had he been robbed of such, as well as of *wooden ones,* would scarcely have been passed over in silence." *

Meerman, pensionary of Rotterdam (says Mr. Willet), has, with honour to himself, stated the arguments used in the confutation of those urged by the writers of Haerlem, as well as those that seem to make for their advantage; if the reader makes a false judgment on the result, he is only to blame himself. Meerman hath furnished him with the means of making a right one, though prejudice in favour of his own country hath prevented him from doing it for himself.†

Several of the points in the preceding pages, upon the asserted invention of Coster, are so ably touched upon in the admirable Memoir of Mr. Willet,‡ that I cannot, in justice, forego the advantage of extracting from him, in preference to attempting the argument in any language of my own. Speaking of the account given by Junius,§ Mr. W. says, "it should be the first taken notice of; it is the fullest, and was probably the first, and on which all the subsequent ones have been taken, as Malinkrot hath been very particular in his observations on it. I will give what he says, although it may be thought tedious. He asks why Coster made choice of the *bark,* not the wood of the beech tree, to make his letters on; the bark must be too tender for the office assigned to them; secondly, as Coster was carving single letters on this bark, for the use and instruction of his grand-children, whether he could hope to make with his knife, on such materials, such correct letters as any school-master would have supplied him with? How could he dispose these letters, so as to compose a *word,* especially as he owns, in another place, that printer's ink was not then found out (to which

* Lemoine, p. 7.

† See the Correspondence between Dr. Ducarel and Mr. Meerman, in N. & B.'s Origin of Printing.

‡ First printed in the Archæologia, vol. xi, and reprinted, 1820, by Mr. Hodgson of Newcastle.

§ Willet, p. 21, &c.

I must add, how could such tender materials bear the stroke of the printing-press?); and even when he had improved his bark types with leaden ones, simply, and not hardened with other metals, they must be found unequal to this great pressure; but his surprise is increased, when he considers the number to be so great, even after the theft by Fust, as to make vessels for holding liquors; he thinks it would have been more natural to have preserved them, and added such new ones as might be wanted to carry on such a lucrative trade as he allows it to have been; besides, these vessels, made with the reliques of the printing apparatus, must be made with very durable wood to have lasted till the time of Junius, about 140 years, and even Coster's house must have been well built, as they were then mostly of wood, to have lasted so long; but this house, and these vessels, seem to have been unknown to those early writers who treated the subject of early printing long before Junius took it up; he urges that Fust took his time wrong in committing the theft on Christmas-day, as that festival was more likely to increase the number of idle people, whose curiosity to discover something of an art so carefully concealed, exposed Coster's house to more danger then than at any other time, and should have redoubled his vigilance; he observes that Fust, very absurdly, encumbered his flight with such a vast load (Chevillier supposes not less than 1,000lbs.) which, as he was acquainted with the secret of the art, he might so easily supply himself with, to any place he might fly to, and probably, without a crime, have established himself in; that after his flight, and getting out of a walled town, and that better guarded at that time than commonly, on account of the riots and debauchery incident to such a festival, he should stop at Amsterdam, within two hours easy walk, where he might be speedily apprehended, as the intercourse between the two towns was incessant; that he should then proceed no further than Cologn, where he might be secured; and lastly to Mentz, where he was allowed to settle quietly, and without molestation, or complaint to any magistrates about this robbery; he might thus recover all his types, &c. (if he could not do without them) and have renewed the profits of such a beneficial trade, instead of weakly giving them up, and converting the remainder

of his stock into drinking-vessels, or vessels for holding liquors; but it is laughable to hear an old fellow, Cornelius, fellow-servant with Fust and Coster, and then eighty years old, threatening what he would do with Fust if he lived a little longer, and could meet with him; the theft was in 1441, and Fust lived till 1466, twenty-five years after the theft, long enough to have allowed Cornelius time to execute these threats, and when he certainly was better able to execute them. Malinkrot's observations are, perhaps, sufficient to invalidate this account of Junius: I shall only observe, that this account of Junius is such a piece of oratory as is unnecessary in an investigation of truth, and seems to be built chiefly on popular opinion. As he appears to be diffident himself of the success of his testimony, he must allow us to be more so."

Mr. Willet, with that happy perseverance necessary to qualify himself for the pursuit after truth in this controversy, determined to become fully acquainted with the practical part of letter-founding and printing. Sensible how much, in such an inquiry, depended on a knowledge in both branches, he took great pains to make himself a perfect master of each, and found in Mr. Martin, hereafter spoken of as distinguishing himself in cutting and casting the types for Mr. Bulmer's Shakspeare, a ready and able master. This gives to his opinion an air of scientific precision, which it is a pleasure to follow. On the subject of the Oxford book, said to be printed by Corsellis, claiming priority over the works of Caxton, he says, "The strongest objection to this book being printed by Corsellis is, that it is said to be printed on wooden types or blocks," the only method which, according to all accounts, was used at Haerlem. Messrs. Bowyer and Nichols (Orig. of Print.—Adv. p. iv.) compromise the dispute thus. "They are of opinion that the Oxford press was prior to Caxton's, and think that those who have called Mr. Caxton 'the first printer in England,' and Leland in particular, meant that he was the first who practised the art with *fusile types*, and, consequently, 'first brought it to *perfection*,' which is not inconsistent with Corsellis's having printed earlier at Oxford, with *separate cut types in wood*, the only method he had learnt at Haerlem. The speaking of Caxton as the first printer in England, in *this* sense of the expression, is not irreconcileable with the story of Corsellis." Now

what says Mr. Willett: "If they rest their faith on this foundation, they should have taken care to have seen the book. Mr. Herbert, who hath continued Ames's Typographical Antiquities, not only saw it, but examined it carefully, and hath given a fac-simile of the colophon, declares not only on his own authority, but that of the most eminent printers to whom he showed it, that it is printed with the *fusile separate metal* type, and not on wooden type or blocks; and if we may rely on the fac-simile exhibited by him, we may safely add, that it is performed with as beautiful a type as any we know from the most celebrated printer of that age. But now the wooden types are mentioned, may I be allowed to say, with Heineken, that the time may come when the writers on this subject will be ashamed to insist on them? There is no mention made of them in Schoeffer's account to Trithemius. *He* only talks of wooden *blocks*. Wooden types must be too weak, under any management, to bear the press, and must be soon broken; they could not bear washing and cleaning, they must *swell* with the moisture, and *shrink* in drying, and so never preserve their true shape and form for any time. We know, indeed, that they were attempted, but soon abandoned; and no entire book was probably ever printed with them. The notion of the *fuso-sculpte* so eagerly taken up by Meerman, seems to me to be still more absurd; and I am surprised that Bowyer and Nichols, eminent printers themselves, and therefore competent to have corrected Meerman in such an extravagant idea, should countenance and support him in it; I will venture to pronounce it *impossible*."—P. 16, 17.

"It may be curious, in this place, to trace the art through its several progresses. From the blocks of wood, which could only be employed on the work for which they were carved, an attempt was made to cut *moveable letters* on wood: but this, I am satisfied, went no farther than trials; and if Schoeffer's happy genius had not discovered the art of casting *matrices* and cutting punches, the art must have remained imperfect and barbarous. Many difficulties were still to be overcome; lead alone was too soft, and a mixture of hammered iron was added to it: and with this composition, to which tin was sometimes added, printing was carried on till latterly, when chemistry was called in to its aid, and by the addition of one pound of *regulus of antimony* to five pounds of

lead, a happy and complete composition hath been obtained, hard enough to bear the press, and yet soft enough to allow the knife, and even the *plane*, for the subsequent operations in fitting and completing the letters for the *press*. The punch, therefore, of steel; the mould of that and wood; the matrix of copper; and this composed metal, are all that are necessary for Letter-founding."—P. 61, 62.

The testimony of Hadrianus, then, is the only document on which the Dutch writers have relied, in their strenuous efforts to vindicate for Haerlem its chimerical honours.* But, surely, an event so remarkable, so glorious for a country, would have been mentioned by contemporary authors, had there been the least foundation for the claim; yet no Dutch author, nor any work whatever of the fifteenth or sixteenth century, makes the least possible mention of the fact.†

Erasmus, who was born during the life-time of Gutenberg (1467), and who was probably writing within fifty years of the alleged time of Coster, is totally silent on the subject. Mr. Horne thus elegantly sums up his opinion on the claim in favour of the Dutch pretenders. After the conclusive arguments which he had previously adduced, "It is evident, therefore," says he, "that Haerlem is not the city where the Art of Printing was discovered. If we examine all the authors without exception who have written in favour of that city, we shall not find the least contemporary document on which to support their pretensions. Every assertion they make is reduced to the narrative of Junius, solely composed of hearsays, on which every one comments according to his fancy or prejudices. Yet, on the authority of this fable, have the Dutch proceeded to strike medals, engrave inscriptions, and erect statues, and other monuments, to the glory of the "immortal and incomparable first printer, Laurent Janssoen," whom they have sometimes represented to be a disturber of the public peace, and have condemned him as such; sometimes as a sacristan, or churchwarden; afterwards as a sheriff; then as a treasurer; and finally, as an illustrious branch of the House of Brederode, a descendant in the right line from the ancient sovereigns of Holland."‡

* Horne, p. 147. See also the original passage in note A, p. cxvi.

† Ibid. p. 148. ‡ Ibid. p. 151.

"Of all the authors to whom the world is indebted for a partilar account of the discovery of printing, Abbot Trithemius justly claims pre-eminence; both upon account of his living nearest to the time when the art originated, which, he tells us, was in his younger years; as well as his care to derive his intelligence on the subject from the purest sources. We have two noble testimonies out of his Chronicle; one from the first part, entitled '*Chronicon Spanheimense*,' wherein, speaking of the year 1450, he says, 'That about this time the art of printing and casting 'single types was found out a-new, in the city of Mentz, by one 'John Gutenberg, who having spent his whole estate in this 'difficult discovery, by the assistance and advice of some honest 'men, John Faust and others, brought his undertaking at length 'to perfection; that the first improver of this art, after the in-'ventor, was Peter Schoeffer de Gernsheim, who afterwards printed 'a great many volumes; that the said Gutenberg lived at Mentz, 'in a house called *Zum-junghen*, but afterwards known by the 'name of the Printing-house.' * * * * The next passage, which is fuller, and for its singularity and decisiveness deserves to be set down at length, is taken out of the second part of Trithemius's Chronicle, intitled *Chronicon Hirsaugiense:* 'About this time '(anno 1450), in the city of Mentz, in Germany, upon the Rhine, 'and not in Italy, as some writers falsely affirmed, the wonderful 'and *till then unknown* art of printing books by metal types '*(characterizandi)* was invented and devised by John Gutenberg, 'citizen of Mentz, who, having almost exhausted his whole estate 'in contriving of this new methcd, and labouring under such in-'superable difficulties, in one respect or other, that he began to 'despair of, and to throw up, the whole design; was at length 'assisted with the advice and purse of John Faust, another citizen 'of Mentz, and happily brought it to perfection. Having, there-'fore, begun with cutting characters of the letters upon wooden 'planks, in their right order, and completed their forms, they 'printed the vocabulary called *Catholicon;* but could make no 'farther use of those forms, because there was no possibility of 'separating the letters, which were engraven on the planks, as we 'hinted before. To this succeeded a more ingenious invention; 'for they found out a way of stamping the shapes of every letter 'of the Latin alphabet, in what they called matrices, from which

'they afterwards cast their letters, either in copper or tin, hard 'enough to be printed upon, which they first cut with their own 'hands. It is certain that this art met with no small difficulties 'from the beginning of its invention, as I heard thirty years ago 'from the mouth of Peter Schoeffer de Gernsheim, citizen of 'Mentz, and *son-in-law to the first Inventor of the Art.** For 'when they went about printing the Bible, before they had worked 'off the third quire, it had cost them already above 4,000 florins. 'But the afore-mentioned Peter Schoeffer, then servant, and 'afterwards son-in-law, to the first inventor, John Faust, as we 'hinted before, being a person of great ingenuity, discovered an 'easier method of casting letters, and perfected the art as we now 'have it. These three kept their manner of printing very secret 'for some time, until it was divulged by their servants, without 'whose help it was impossible to manage the business, who 'carried it, first to Strasburg, and by degrees all over Europe. 'Thus much will suffice concerning the discovery of this wonder-'ful art, the first inventors of which were citizens of Mentz. 'These three first discoverers of Printing, viz. JOHN GUTEN-'BERG, JOHN FAUST, and PETER SCHOEFFER, his son-in-law, 'lived at Mentz, in a house called *Zum-junghen*, but ever since 'known by the name of the Printing-house.' "—*Palmer's Gen. Hist. of Printing, b. i, chap. iii. p.* 9, 12; *as quoted by M'Creery, The Press, p.* 3, *notes.*

I do not place much reliance upon the evidence of monuments and inscriptions, in an inquiry like the present: but it is fair to add, that the claim of Gutenberg is supported by this description of testimony. Luckombe affirms that "there is (that is, at

* Mr. Willett [see antè p. 54] has accumulated a variety of evidence demonstratively conclusive against the pretensions of Haerlem, and in favour of the claims of Mayence (see Horne, p. cxix, cxx, App.). Mr. Willett says, "this seems to be as plain and as full an account of the discovery as we can expect; few, if any, of the discoveries of the ancient arts, have reached us so well authenticated and explained. We have here the son-in-law of the inventor of the art, the principal improver of it himself by the introduction of the fusil and metal types, giving this fair and modest account to Trithemius, honestly giving to Gutenberg the honour of the first invention. If his modesty and candour led him to give up this praise to Gutenberg, what could induce him to withhold it from Coster and Haerlem, if he had known (and know it he must) that any such claim had existed?"

the time he wrote, and which I understand remains to this day) at Mentz, in the front of the house where Gutenberg lived,* an inscription (of which the following is a copy), which was put up in the year 1507."

JOHANNI GUTTEMBERGENSI MOGUNTINO,
QUI PRIMUS OMNIUM LITERAS ÆRE IMPRIMENDAS INVENIT;
HAC ARTE DE ORBE TOTO BENE MERENTI;
YVO VINTIGENSIS
HOC SAXUM PRO MONUMENTO POSUIT.

Translation.

THIS STONE IS PUT UP BY IVES OF WITIGEN, AS A TOKEN IN HONOUR OF JOHN GUTTEMBERG OF MENTZ, WHO FIRST INVENTED PRINTING LETTERS MADE OF METAL, AND THUS DESERVED WELL OF ALL THE WORLD.

From the best attention, therefore, that I have been able to bestow in canvassing authors and compilers who have concentrated all the important arguments and opinions heretofore adduced to advocate the respective sides of this controversy, I think the conclusion may be satisfactorily drawn:—That, to GUTENBERG is due the high appellation of FATHER OF PRINTING: to SCHOEFFER that of FATHER OF LETTER-FOUNDING: and to FUST that of THE GENEROUS PATRON, by whose means the wondrous discovery, "THE NURSE AND PRESERVER OF THE ARTS AND SCIENCES," was brought so rapidly to perfection.

Though not able to learn the particular cause by which they were excited, we have reason to revere the inventive faculties of the author of this admirable art, while we are plentifully regaling upon the fruit of his labours. Never were human genius and industry crowned with so rich and ample a harvest. Instruments have been contrived to facilitate the progress of the artificer; machines have been invented to ease the toils of the labourer;

* Lemoine says, "in the inner court of the College of Lawyers, by Ives of Witigen, or Venza, doctor of laws, and professor of that university."—P. 12.

but, by the discovery upon which our reflections have been here engaged, we are to look at the whole intellectual world as benefitted, exalted, and blessed. Curiosity is awakened; thought is made active, vigorous, and permanent; knowledge is accelerated; the powers of the human mind are wider and wider expanded; and virtue, truth, and human happiness rest upon the glorious result!

Opmer, who was a native of Holland, and who died about 1595, bestows the following elegant panegyric upon the Art and its Inventor, "That in the decline of the world, when the last day seemed to approach, so many men of accomplished learning and singular piety should break forth, like bright stars, with unusual lustre through the tempestuous clouds of deadly discord; so that you would have thought the world had been recovered from a long disease, and gradually re-assumed its lost strength, in the arts and sciences. This was effected by the assistance of that Art, which from metal characters of letters ingeniously cast, disposed in the order in which we write, spread over with a convenient quantity of ink, and put under the press, has ushered into the world books in all languages, and multiplied their copies like a numerous offspring, and has obtained the name of TYPOGRAPHY. This Art of Printing was most certainly invented and brought to light by John Faust in the year 1440. It is amazing that the author of so important a discovery, and so generous a promoter of divine and human learning, should be unworthily forgotten, or only casually remembered as a mere artist. Surely such a person deserves a place amongst the greatest benefactors of mankind!"*

I shall add another extract from Lemoine, to whom I have already been, and shall be still more indebted, for knowledge and information respecting the first promoters of this Art.

"Thus, in a compendious, but impartial manner, I have traced the rise and progress of an invention, the practice and improvement of which has altered the manners as well as the opinions of the whole world. Before the invention of this Divine Art, mankind were absorbed in the grossest ignorance, and oppressed under the most abject despotism of tyranny. The clergy, who before this æra held the key of all the learning in Europe, were themselves ignorant, though proud, presumptuous, arrogant, and artful; their devices were soon detected through the invention of

* Lemoine, page 99.

Typography. Many of them, as it may naturally be imagined, were very averse to the progress of this invention; as well as the *brief-men*, or writers, who lived by their manuscripts for the laity. They went so far as to attribute this blessed invention to the Devil; and some of them warned their hearers from using such diabolical books as were written with the blood of the victims who devoted themselves to Hell, for the profit or fame of instructing others. Such was the fate of its first rise; but, like all other useful inventions, it soon soared far above the malignant reach of invidious objections: the more liberal part of mankind, amongst whom it is but justice to say were some ecclesiastics, gave it every necessary encouragement; and kings and princes became, for the first time, the patrons of learning. Genius, like beaten gold, spread over the world; and the latter end of the fifteenth century saw a complete revolution in the human mind; for this art brought with it that of discovering deception and exposing hypocrisy: and, by its rapid multiplication of copies, more could be accommodated with the labours of the learned, than before by the tedious operation of the solitary pen.

"The Reformation, which, from various causes, changed the face and interest of most of the European States, was not a little forwarded by the ingenuity of printing. This art facilitated the reciprocal communication of dispute, and alternately assisted each sect in mutually supporting their favourite doctrines.

"From the multitude of books produced in the sixteenth century, the world began to assume a new character and way of thinking; and notwithstanding the troubles, which at that time shook Europe to its center, some of the first order of geniuses rose to enlighten the world. A Bacon in England, succeeded by a Boyle, laid the foundation of the present system of philosophy, which Sir Isaac Newton so beautifully illustrated afterwards.

"Its progress was not confined to Europe, or to the European languages. It penetrated to the East Indies. Some Danish Missionaries, sent to the African coast, had good success in converting a great number of the natives, and the Society for propagating the Gospel in foreign parts, established in London, sent, in 1569, the whole apparatus of a printing-house to Tranquebar, with proper workmen, and large quantities of paper, which they thankfully received, and immediately set to work. They have since printed

a fine quarto New Testament, Prayer-books, Catechisms, &c. in Portuguese, and several Eastern languages and characters, for promoting their pious design: and I have shown, in the historical parts, that it early reached the inhospitable coasts of Iceland and Russia, towards anno 1560.

"The famous Thevet, historiographer to Henry III. of France, and a great traveller, gives the following account of its reception at Moscow: 'As for the Art of Printing, they (the Muscovites) 'had not the use of it until 1560; when it was discovered to them 'by a Russian merchant, who bought a number of types, &c. with 'which many neat editions were printed. Nevertheless, as at 'that period the Russian nation was equally clouded by superstition, and a consequent fear of enlightening the human mind, 'as other countries; some of them hired several fellows privately 'to burn all their characters, apprehending that printing might 'make some change or confusion in their religion. And yet not 'the least inquiry or prosecution was made after this, either by 'the prince or his subjects.'"*

The most ancient Russian printed book which has been discovered, is a Sclavonic Psalter, bearing date *Kiev*, 1551, two years after a press was established in Moscow.†

It is stated that there are now fifteen Printing Offices in Petersburgh, ten in Moscow, five in Wilna. In Revel, Dorpat, Cracow, two each; and in the whole empire, eight or nine Letter Founderies. The present Emperor has established a Printing Office, on a large scale, at Petersburgh, to which is now adding a Foundery; but, to the honour of England, the whole is under the superintendance of British artists, the Messieurs Rutt. However, the press in Russia is still under the most severe shackles of arbitrary censorship. Not a book, pamphlet, or newspaper, can be printed or circulated without this previous submission to despotic authority: it is not unusual to see English newspapers with the honorable distinction of having whole paragraphs cut out, or defaced by a black patch, to render the obnoxious parts illegible.

The common reading character and language of Russia is the Sclavonian. The copies of the New Testament distributed by the Petersburgh Bible Society among the Russian army, is in this dialect. It is said to have been introduced into Russia by

* Lemoine, p. 100. † Bowring, on Russian Literature, 1821.

Cyrillus, in the ninth century; it consists of forty-two letters, whereas the modern Russ has only thirty-five. The Russian language is one of the richest, if not the richest of all the European languages, and contains a multitude of words which can only be expressed by compounds and redundant definitions in any [other?] northern tongues.*

"Little is known respecting the remote parts of Africa, called Abyssinia, and even those which are nearer, as Morocco, Fez, &c. yet it is certain they received the Art early from their neighbours, the Spaniards, or Portuguese, and encouraged it for a considerable time; yet, whatever be the reason, scarce any footsteps of it now remain, if Mr. S. Olon, the late French king's ambassador to the king of Morocco, is to be believed, who affirms, that there is scarce one printing-house in it. He adds, that it is a piece of religion among them not to suffer any corn, horses, or books, to be exported; and that their fondness for books is the greater, by reason of their scarcity, since there is hardly a press in the whole empire.

"The diffusion of knowledge, by this Art, was astonishing and rapid. The most bigoted, as well as the most liberal, joined in spreading its influence. Even the Jews, who are to this day so tenacious of their ancient customs, allowed the use of this Art to propagate their sacred books. Those palladiums of their faith and liberty then, for the first time, became mechanically impressed on paper.

"Thus we see how early this Art was an auxiliary to the spreading the sacred light of the word of God, even among those of the most confined and prejudiced minds. Many religious establishments in Europe encouraged the Art of Printing, insomuch that they established Printing-offices within the walls of their monasteries; and, in fact, they were the most proper persons for such undertakings. Possessing more knowledge than the laity, and having more leisure, they were the better calculated to produce works of learning. Thus we find that in anno 1465, was published an edition of Lactantius's *Institutes*, printed *in monasterio Sublacensi*, in the kingdom of Naples, in which the quotations from the Greek authors are printed in a very neat Greek letter.

"The Greek tongue, which had lain dormant for centuries, began

* Bowring.

to revive upon the invention of the Greek types, which was a little before the time of Aldus. In 1493, a fine edition of Isocrates was printed at Milan in folio, by Henry German and Sebastian Ex Pantremulo. But the beauty, correctness of his characters, and number of his editions, place him in a much higher rank than his predecessors; and his books in general are the most elegant of the time.

"I fear it will be thought an arrogant attempt I have undertaken, in thus endeavouring to trace the consequences of an invention of which I am a devoted admirer; but I shall rely upon the reader's candour, and beg leave to proceed. The seventeenth century found the world inquisitive; every encouragement was held out to learning, and men of talents were then judged the fittest for public affairs. Such, as might be expected, gave the most liberal encouragement to every species of knowledge and learning. Academies and societies were formed under royal auspices; institutions, public and private, vied with each other which should oblige the world most with their labours. Mechanics were not tardy in bringing to light their inventions and improvements; and it may undoubtedly be taken as a fact that the public were benefited by their united labours.

"Gazettes and newspapers began to appear towards the end of the seventeenth century; polemical zeal was now somewhat abated, but party spirit ran high every where.

"The middle of the present century (the eighteenth) saw a new order of things arise from industrious ingenuity, the consequence of the extension of this Art. Nothing will produce excellence, or superior effect, sooner than a rivalship in any art or science. Printers multiplied, and they also multiplied books. The French had long been in possession of their *Bibliotheque des Sçavans.* The Gentleman's and London Magazine rose in 1731 and 1732; and these were succeeded by others, as the Universal in August 1747; and Reviews and Annual Registers soon followed. The province of these was, to keep a shrewd look out upon the works which teemed from the press; and the former in bringing young scions of genius forward, have done the greatest benefit to learning that posterity has to acknowledge.

"Public spirit now declares itself in favour of public exertion, and Printing shares a liberal quota of encouragement and applause;

and from the universal patronage of readers, it cannot be deemed prophecy to declare, that this Art is fast verging to its acme of perfection."*

It seems to me that I cannot conclude this Section in any way more acceptable to my readers than by the following Eulogium upon the Art of Printing, written, and intended to have been published, by the late Earl Stanhope.

"I participate in the encomiums bestowed by all former eulogists on this transcendant art, which may justly be considered as the nurse and preserver of every species of knowledge; and, while I look into history for an examination of the benefit which mankind has already derived from it, I feel equal, or even still more pleasure in anticipating that which it is yet capable of effecting, when, by being perfectly unfettered all over the globe, it will give rise to, and promote a system of universal education; and when, as a certain consequence of that education, all societies will direct their strenuous efforts towards bringing into complete operation that divine morality which has for its basis this simple, but sublime maxim, 'Do unto another that which you would wish 'another should do unto you.'

"Printing, from its commencement, has always had some opponents, actuated from selfish interest; who, in many cases, possessed such influence over their fellow-men as to corrupt their judgments and decisions, whenever the question of its advantages or disadvantages to mankind came to be agitated. The monks, in particular, were its inveterate opposers, the great majority of them acting upon the spirit of an avowal made by the Vicar of Croydon, in a sermon preached by him at St. Paul's Cross, when he declared, 'We must root out printing, or printing will root out us.' Happily, this superior art withstood their hostility, and it became the main engine by which their artifices, invented to keep the people in superstition and ignorance, were detected and punished.

"Though much good has already resulted from the use of printing, yet much of what it is capable of still remains to be accomplished; for its utmost utility is not to be looked for while there remains any restraint upon its practice throughout the world. The real philanthropist and philosopher cannot but view with regret the state of persecution under which printing labours in most of the

* Lemoine, pp. 100—102.

Catholic countries in Europe, wherein it remains still subject to the control of bigotted ecclesiastics, who feel, as being still applicable to themselves, all the force of the declaration of the Vicar of Croydon. If, at the present day, they are not so bold as to attempt to annihilate it entirely, yet they watch over the productions of the press with such a scrutinizing eye, and impose such shackles upon it, as not to permit any thing to be printed but what has a tendency to uphold the iniquitous system of continuing the people in ignorance. Even in England, it cannot be disavowed that printing has many and powerful opponents; who attack it under various pretences, sometimes upon pretended allegations of danger to the state; sometimes upon general allegations of injuring society by its licentiousness; and there are some persons even so unblushing as to declare their aversion to printing, upon the ground that it is dangerous to give a too extended education to the lower classes of society.

"This part of the subject might be greatly enlarged upon; but as that is not my present aim, I shall now content myself with the subjoined extracts from Dr. Knox.

"'The Art of Printing (he says), in whatever light it is viewed, 'has deserved respect and attention. From the ingenuity of the 'contrivance it has ever excited mechanical curiosity; from its 'intimate connection with learning, it has justly claimed historical 'notice; and from its extensive influence on morality, politics, 'and religion, it is now become a subject of very important spe-'culation.'

"Contrasting the good with the evil which accompanies printing, Dr. Knox observes, 'Though the perversion of the art is 'lamentably remarkable in those volumes which issue, with 'offensive profusion, from the vain, the wicked, and the hungry; 'yet this good results from the evil, that as truth is great and 'will prevail, she must derive fresh lustre by displaying the su-'periority of her strength in the conflict with sophistry.'"

SECTION III.

The Preface of Luckombe, as taken from Ames's Typographical Antiquities —Books esteemed real Treasures—Cicero's desire to form a Library—Instances of large Sums given for Books—Introduction of Printing—The downfal of Scribes and Illuminors—Alarms of the Priestcraft —University of Cambridge—Vicar of Croydon—Cardinal Wolsey—Share of Printing in effecting the Reformation—Freedom of the Press —Usefulness of the Art—Introduction into England—Digression on the value of Books before Printing was invented—Opposition of Scribes and Monks.—CAXTON.—Attempts to rob him of the glory—Refutation of the Arguments against him, and Proofs for him—His Press at Westminster—Sketch of his Life and Character—His Book of the Game of Chess, the first printed in England, 1471—*The Dedication—Caxton's Type—Fac Simile—Characteristics of the First Printed Books.*

PREFACE *

WHEREAS it appears from reason and antient history, that in the most early ages of the world mankind had industriously invented other means of communicating their ideas than merely by the voice, not only that they might with freedom converse at a distance, but also to enable them to preserve and transmit to their posterity the most valuable deeds, and most useful discoveries made in the world; they esteemed books, those curious repositories of the sentiments and actions of men, as a real treasure, and the happy possessors, who well understood the subjects they contained, were caressed by the wise, and favoured by the great, and consequently were the only truly learned, with whom all prudent princes and philosophers chose to advise.

* When I decided upon inserting this Preface, I imagined it to have been written by Mr. Luckombe, for his Book. I have since found it to be Mr. Ames's Preface to the original edition of his Typographical Antiquities; its value is by no means lessened by the knowledge of its real author, but it ought to have been acknowledged. Some trifling alterations were made in the language, which is here restored; and the paragraphs added by Luckombe are inclosed in brackets.

Books being thus useful and curious, the learned thought it worthy the chief labour of their lives either to compile or collect those valuable tracts, and imagined themselves distinguished from mankind more or less as they excelled in the bulk or goodness of their libraries: of which I cannot produce a greater instance than what Dr. Conyers Middleton says in the Life of Cicero, p. 136 and 137. 'Nor was he (speaking of Cicero) less eager in making 'a collection of Greek books, and forming a library, by the same 'opportunity of Atticus's help. This was Atticus's own passion, 'who, having free access to all the Athenian libraries, was employ-'ing his slaves in copying the works of their best writers, not only 'for his own use, but for sale also, and the common profit both of 'the slave and the master; for Atticus was remarkable, above all 'men of his rank, for a family of learned slaves, having scarce a 'foot-boy in his house who was not trained both to read and write 'for him. By this advantage he had made a very large collection 'of choice and curious books, and signified to Cicero his design of 'selling them; yet seems to have intimated withal, that he expected 'a larger sum for them than Cicero would easily spare; which 'gave occasion to Cicero to beg of him, in several letters, to reserve 'the whole number for him till he could raise money enough for 'the purchase.' 'Pray keep your books,' says he, 'for me, and 'do not despair of my being able to make them mine; which, if I 'can compass, I shall think myself richer than Crassus, and 'despise the fine villas and gardens of them all.' Again, 'Take 'care that you do not part with your library to any man, how 'eager soever he may be to buy it; for I am setting apart all my 'little rents to purchase that relief for my old age.' In a third letter, he says, 'That he had placed all his hopes of comfort and 'pleasure, whenever he should retire from business, on Atticus's 'reserving these books for him.' Again, in p. 453, 'Atticus lent 'him two of his librarians to assist his own, in taking catalogues, 'and placing the books in order; which he calls the infusion of a 'soul into the body of his house.'

And among other writers on this subject, Mr. Watson, in his History of Printing, tells us, from an epistle of Antonius Bononia Becatellus, surnamed Panorme, to Alphonsus king of Naples and Sicily, lib. 5, epist. *Significasti mihi nuper ex Florentia*, &c. 'You 'lately wrote to me from Florence, that the works of Titus Livius

'are there to be sold, in very handsome books; and that the price 'of each book is 120 crowns of gold: therefore I entreat your 'majesty, that you cause to be bought for us Livy, whom we used 'to call The King of Books, and cause it to be sent hither to us. 'I shall in the mean time procure the money which I am to give 'for the price of the book. One thing I want to know of your 'prudence, whether I or Poggius have done best; he, that he 'might buy a country-house near Florence, sold Livy, which he 'had writ in a very fair hand; and I, to purchase Livy, have ex-'posed a piece of land to sale: your goodness and modesty have 'encouraged me to ask these things with familiarity of you. 'Farewell, and triumph.' There are several passages which shew the great value and esteem of manuscripts, and that the manner of their conveyance was by notaries, as lands, &c.

[Nor was it in Italy only that books were sold at this enormous price, but in France also, as appears by what Gaguin wrote to one of his friends who had sent to him from Rome to procure a Concordance for him: 'I have not to this day found out a Concord-'ance, except one, that is greatly esteemed; which Paschasius, 'the bookseller, has told me is to be sold, but the owner of it is 'abroad; and it may be had for a hundred crowns of gold.'] *

I (the late Mr. Ames), have a folio manuscript in French verse called, *Romans de la Rose* (from whence Chaucer's translation), on the last leaf of which is wrote, *Cest lyuir costa au palas de Parys quarante coronnes dor, sans mentyr;* that is, This book cost at the palace of Paris 40 crowns of gold, without lying. (About 33*l.* 6*s.* 6*d.* sterling.)

[Galen says, in his Commentary upon the Third of the Epidemicks, and upon the First Book of the Nature of Man, that 'Ptolemeus Philadelphus gave to the Athenians fifteen talents, 'with exemption from all tribute, and a great convoy of provisions, 'for the autographs and originals of the Tragedies of Eschylus, 'Sophocles, and Euripides.']

* Fifty years were sometimes employed to produce one single volume. At the sale of Sir W. Burrel's books, May 1796, was a MS. Bible on vellum, beautifully written with a pen, and illuminated, which had taken upwards of half a century to perform; the writer, Guido de Jars, began it in his 40th year, and did not finish it till he had accomplished his 90th, anno 1294, in the reign of Philip the Fair.

[Brassicanus says, 'The emperor Frederick III knew no 'better gratuity for John Capnion, who had been sent to him on 'an embassy by Edward of Wittemberg, than by making him a 'present of an old Hebrew Bible. Upon the whole, Manuscripts, 'or rather Books, were so scarce in those days, that they were 'not sold but by contracts, upon as good conditions and securities 'as those of an estate: among many other instances of the like 'kind, there is one in the library of the College of Laon, in the 'city of Paris, made in the presence of two notaries, in the year '1332.' In those times the opulent only could procure books, the poor being entirely debarred by their excessive price; whereas now, by the Art of Printing, books may be procured on every science, and the inventions and improvements of every art may be attained by people of small fortunes.]

[Another instance of the high estimation in which books were held in old times, is to be seen in the front of the Manuscript Gospels belonging to the public Library of the University of Cambridge, written in an old hand in Latin and Anglo-Saxonic, given to the University by the learned Theodore Beza. 'This book was presented by Leofric, Bishop of the Church of St. Peter's in Exeter, for the use of his successors.' This Leofric was Chancellor of England in the reign of Edward the Confessor, and died in 1071 or 1072; and by his bequest may be clearly perceived its value.]

About the time of our king Henry II, as I have somewhere read, their manner of publishing the works of authors was, to have them read over for three days successively before one of the universities, or other judges, appointed by the public; and, if they met with approbation, copies of them were then permitted to be taken, which were usually done by monks, scribes, illuminors and readers, brought or trained up to that purpose for their maintenance.

At the time that printing was introduced, and a little after, the Scribes used their utmost efforts to excel, being willing to keep their places, and would say, such a book was old, and would add, unprofitable; but such an one was new, neat, elegantly wrote, easy to be read, &c. which method of proceeding, by the way, may have occasioned the loss of many a good composition. Indeed, before this noble Art of Printing by separate types made

of metal was found out, there were but few authors in comparison to the great increase of learned men since. But as the method of increasing and propagating books by writing was excessively tedious and expensive, so that few could encourage it but sovereign princes, or persons of great wealth, the bulk of mankind was in a manner deprived of those truly valuable advantages resulting from books; which alone sufficiently shews how greatly we are indebted to the inventors of that useful, or, as I may justly say, divine Art of Printing. We have now no occasion to wait the slow result of the transcriber, but with a little labour and easy expense may store our libraries with all the knowledge of our learned progenitors; and have it in our power, with a little study, to be masters of those arts, which they only attained to with the greatest labour and industry. And I am persuaded, if any one would be at the trouble to compare the present body of our people, in regard to literature and their capacities in affairs, with those of our ancestors, who flourished 300 years ago, when there was no printing, they will readily acknowledge, that this curious art hath not a little contributed to the benefit and improvement of mankind.

[These proceedings for the advancement of learning and knowledge alarmed the ignorant and illiterate monks; insomuch that they declaimed from the pulpits, 'There was a new language 'discovered called Greek, of which people should beware, since it 'was that which produced all the heresies: that in this language 'was come forth a book called the New Testament, which was 'now in every body's hands, and was full of thorns and briers: 'that there was also another language now started up which they 'called Hebrew, and that they who learned it were turned 'Hebrews.' Here in England, the great Erasmus tells us, his publishing the New Testament in its original language met with a great deal of clamour and opposition; that one college in the University of Cambridge, in particular, absolutely forbade the use of it. 'These,' says he, 'object to us the feigned authority of 'synods, and magnify the great peril of the Christian faith and 'the danger of the Church, which they pretend to support with 'their shoulders, who are much fitter to prop a waggon. And 'these clamours they disperse among the ignorant and super-'stitious populace, with whom, having the reputation of being

'great divinès, they are very loth to have their opinions called in 'question, and are afraid that when they quote the Scripture 'wrong, as they often do, the authority of the Greek and Hebrew 'verity should be cast in their teeth, and that by and by appear 'to be a dream, which was by them given out for an oracle.' Accordingly the Vicar of Croydon in Surry is said to have expressed himself to the following purpose in a sermon which he preached at Paul's Cross about this time, 'We must root out 'Printing, or Printing will root out us.']

[The discovery of Printing contributed greatly to the production of learned men in Europe. Lord Herbert, in his Life of King Henry VIII, p. 147, supposed that Cardinal Wolsey stated the effects of this Art to the Pope thus: 'That his holiness could not 'be ignorant what diverse effects this new invention of printing 'had produced: for, it had brought in, and restored, books and 'learning; so together it hath been the occasion of those sects and 'schisms which daily appeared in the world, but chiefly in 'Germany; where men begin now to call in question the present 'faith and tenets of the Church, and to examine how far religion 'is departed from its primitive institution. And that which 'particularly was most to be lamented, they had exhorted lay and 'ordinary men to read the Scriptures, and to pray in their vulgar 'tongue; and if this was suffered, besides all other dangers, the 'common people at last might come to believe, that there was not 'so much use of the clergy. For if men were persuaded once 'they could make their own way to God, and that prayers in their 'native and ordinary language might pierce Heaven as well as 'Latin; how much would the authority of the mass fall? For 'this purpose, since printing could not be put down, it were best 'to set up learning against learning; and by introducing able 'persons to dispute, to suspend the laity between fear and con-'troversy. This at worst would yet make them attentive to their 'superiors and teachers.']

It may shew upon the whole the notions which prevailed, and what the contenders had to say, for the space of 120 or 130 years; which takes in a period of time perhaps the most remarkable of any which our annals afford; a period when BRITAIN roused herself from amidst various superstitions, and sat down on the seat of liberty where she now remains. I think I may have

leave to say, the art of Printing had no small share in the glorious Reformation. The Holy Scriptures were printed in our mother tongue; and the people themselves saw the impositions of the monks, &c. This art in its infancy was patronized by the learned and great; and they encouraged our first printer, William Caxton, to begin and carry on so laudable and useful an undertaking, and he gratefully and honestly owned it in his books.

And here I should be tempted to say something concerning the free use and liberty of the Press, but as it has been touched upon by the famous Milton and others, I choose to drop it, and frankly acknowledge, that it requires greater wisdom and penetration to settle its bounds than I am capable of.

* * * * * * * *

[The usefulness of the art is so universally acknowledged it needs no proof; every one knows, without the invention of this Art, the productions of great men would have been confined in the possession of a few, and of no utility to posterity. In short, what would the Moderns know of the sciences, did not Printing furnish them with the discoveries of the Ancients? All the eulogiums we can bestow on the invention, and the honours we pay it, are far deficient of its merits; and, we believe, few will deny it when they consider the vast expenses which our forefathers were at to procure manuscripts, of which we have given a few instances.]

INTRODUCTION OF THE ART INTO ENGLAND.

(Continued from Luckombe.)

THE late learned and ingenious Dr. Conyers Middleton,* principal Librarian of Cambridge, printed, in 1735, a curious Dissertation concerning the Origin of Printing in England, from whence we have extracted the following account:

It was a constant opinion delivered down by our historians, that the Art of Printing was introduced and first practised in England by William Caxton, a mercer and citizen of London; who, by his travels abroad, and a residence of many years in Holland, Flanders, and Germany, in the affairs of trade, had an opportunity of informing himself of the whole method and process of the art; and by the encouragement of the great, and particularly of the abbot of Westminster, first set up a press in that Abbey, and began to print books soon after the year 1471.

This was the tradition of our writers; till a book, which had scarce been observed before the Restoration, was then taken notice of by the curious, with a date of its impression from Oxford, anno 1468, and was considered immediately as a clear proof and monument of the exercise of printing in that University, several years before Caxton began to practise it.

This book, which is in the public library at Cambridge, is a small volume of forty-one leaves in quarto, with this title: "Exposicio Sancti Jeronimi in Symbolum Apostolorum ad Papam Laurentium:" and at the end, "Explicit exposicio, &c. impressa Oxonie, & finita An. Dom. M.CCCC.LXVIII. XVII die Decembris."

The appearance of this book robbed Caxton of a glory that he had long possessed, of being the introducer of printing to this kingdom; and Oxford carried the honour of the first press. The only difficulty was, to account for the silence of history in an event so memorable, and the want of any memorial in the University itself, concerning the establishment of a new art amongst them, of such use and benefit to learning. But this likewise was thought to be cleared up, by the discovery of a Record, which

* Doctor Middleton appears to have been the first English writer on the ORIGIN OF PRINTING in England.—*H.*

had lain obscure and unknown at Lambeth-house, in the register of the see of Canterbury, and gives a narrative of the whole transaction, drawn up at the very time.

An account of this Record was first published in a thin quarto volume, in English; with this title, "The Original and Growth of Printing, collected out of History and the Records of this kingdome; wherein is also demonstrated, that Printing appertaineth to the Prerogative Royal, and is a Flower of the Crown of England. By Richard Atkyns, esq., London. Whitehall, April 25th, 1664. By order and appointment of the right hon. Mr. Secretary Morrice, let this be printed. Thomas Rycaut, London: printed by John Streater, for the Author, 1664."

It sets forth in short, that as soon as the Art of Printing made some noise in Europe, Thomas Bourchier, archbishop of Canterbury, moved king Henry VI. to use all possible means to procure it to be brought into England: the king approving the proposal, dispatched one Mr. Robert Turnour (who was then master of the robes, and highly in favour with the king) into Flanders, furnished with money for the purpose;* who took to his assistance William Caxton, a man of abilities, and knowledge of the country; and these two found means to bribe and entice over into England one Frederick Corsellis, an under-workman in the Printing-house at Haerlem, where John Gutenberg had lately invented the art, and was then personally at work: which Corsellis was immediately sent down to Oxford under a guard, to prevent his escape, and to oblige him to the performance of his contract; where he produced the book before mentioned, but without any name of the printer. Those who have not the opportunity of consulting Atkyns's book, which is not common, may find the story more at large in Mr. Maittaire's Annals, or Palmer's History of Printing, &c.—*See Post.*

From the authority of this Record, some later writers declare Corsellis to be the first printer in England, viz. Mr. Wood, the learned Mr. Maittaire, Palmer, and one Bagford, an industrious man, who published proposals for a History of Printing. But it is strange that a piece so fabulous, and carrying such evident marks of forgery, could impose upon men so knowing and inquisitive.—*Stower, p.* 22.

* One thousand marks were judged necessary; towards which sum the Archbishop contributed three hundred.

For first, The fact is laid quite wrong as to time; near the end of Henry the sixth's reign, in the very heat of the civil wars; when it is not credible that a prince, struggling for life as well as his crown, should have leisure or disposition to attend to a project that could hardly be thought of, much less executed, in times of such calamity.—*Ib. p.* 23. The printer, it is said, was graciously received by the king, made one of his sworn servants, and sent down to Oxford with a guard, &c. all which must have passed before the year 1459; for Edward IV. was proclaimed in London, in the end of it, according to our computation, on the 4th of March, and crowned about the Midsummer following; and yet we have no fruit of all this labour and expense till near ten years after, when the little book, before described, is supposed to have been published from that press.

Secondly; The silence of Caxton, concerning a fact in which he is said to be a principal actor, is a sufficient confutation of it: for it was a constant custom with him, in the prefaces or conclusions of his works, to give an historical account of all his labours and transactions, as far as they concerned the publishing and printing of books. And, what is still stronger, in the continuation of the Polychronicon, compiled by himself, and carried down to the end of Henry the sixth's reign, he makes no mention of the expedition in quest of a printer, which he could not have omitted had it been true; whilst in the same book he takes notice of the invention and beginning of printing in the city of Mentz.

There is a further circumstance in Caxton's history, that seems inconsistent with the Record; for we find him still beyond sea, about twelve years after the supposed transaction, learning with great charge and trouble the Art of Printing; which he might have done with ease at home, if he had got Corsellis into his hands, as the recorder imports, so many years before: but he probably learnt it at Cologne, where he resided in 1471, and whence books had been first printed with a date the year before.

To the silence of Caxton, we may add that of the Dutch writers: for it is very strange, as Mr. Chevillier observes, if the story of the Record be true, that Adrian Junius, who has collected all the groundless ones that favour the pretensions of Haerlem, should never have heard of it.

But thirdly; The most direct and internal proof of its forgery

is, its ascribing the origin of printing to Haerlem; where John Gutenberg, the inventor, is said to have been personally at work, when Corsellis was brought away, and the art itself to have been first carried to Mentz by a brother of one of Gutenberg's workmen: for it is certain, beyond all doubt, that printing was first invented and propagated from Mentz. Caxton's testimony seems alone to be decisive; who, in the continuation of the Polychronicon, says, "About this time (viz. anno 1455), the crafte of emprynting was first found in Mogounce in Almayne, &c." He was abroad in the very country and at the time, when the first project and thought of it began, and the rudest essays of it were attempted; where he continued for thirty years, viz. from 1441 to 1471: and, as he was particularly curious and inquisitive after this new art, of which he was endeavouring to get a perfect information, he could not be ignorant of the place where it was first exercised. This confutes what Palmer conjectures, to confirm the credit of the Record, that the compiler might take up with the common report, that passed current at the time in Holland, in favour of Haerlem; or probably receive it from Caxton himself: for it does not appear that there was any such report at the time, nor many years after; and Caxton, we see, was better informed from his own knowledge: and, had Palmer been equally curious, he could not have been ignorant of this testimony of his in the very case.

Besides the evidence of Caxton, we have another contemporary authority, from the Black Book, or Register of the Garter, published by Mr. Anstis,* where, in the thirty-fifth year of Henry VI. anno 1457, it is said, "In this year of our most pious king, the art of printing books first began at Mentz, a famous city of Germany."

Fabian also, the writer of the Chronicle, an author of good credit, who lived at the same time with Caxton, though some years younger, says, "This yere (viz. 35th of Henry VI.) after the opynyon of dyverse wryters, began in a citie of Almaine, namyd Mogunce, the crafte of empryntynge bokys, which sen that tyme hath had wonderful encrease." These three testimonies have not been produced before, that we know of; two of them were communicated by Mr. Baker, who of all men was the most able, as well as the most

* Vol. ii. p. 161.

willing, to give information in every point of curious and uncommon history.

We need not pursue this question any farther; the testimonies commonly alleged in it, may be seen in Mr. Maittaire, Palmer, &c. and we shall only observe, that we have full and authentic evidence for the cause of Mentz, in an edition of Livy from that place, 1518, by John Schoeffer, the son of Peter, the partner and son-in-law of John Faust: where the PATENT OF PRIVILEGE GRANTED BY THE EMPEROR TO THE PRINTER, the prefatory epistle of Erasmus, the epistle dedicatory to the prince by Ulrich Hutten, the epistle to the reader, of the two learned men who had the care of the edition; all concur in asserting the origin of the art for that city, and the invention and first exercise of it to Faust: and Erasmus, particularly, who was a Dutchman, would not have decided against his own country, had there been any ground for the claim of Haerlem.

But to return to the Lambeth Record: as it was *never heard of before the publication of Atkins's book,* so it has never since been seen or produced by any man; though the registers of Canterbury have on many occasions been diligently and particularly searched for it. They were examined, without doubt, very carefully by archbishop Parker, for the compiling of his Antiquities of the British Church; where, in the life of Thomas Bourchier, though he congratulates that age on the noble and useful invention of printing, yet he is silent as to the introduction of it into England by the endeavours of that archbishop; nay, his giving the honour of the invention to Strasburg, clearly shews, that he knew nothing of the story of Corsellis conveyed from Haerlem, and that the Record was not in being in his time. Palmer himself owns, That it is not to be found there now; for that the late earl of Pembroke assured him, that he had employed a person for some time to search for it, but in vain.

On these grounds we may pronounce the Record to be a forgery;* yet all the writers above-mentioned take pains to support its credit, and call it an authentic piece.

* "The whole narrative is an absurd fabrication, and has been treated with proper ridicule and severity by Dr. Middleton, and Oxonides."—*Dib. Bib. Antiq.* i. xcvii.

Atkins, who by his manner of writing seems to have been a bold and vain man, might possibly be *the inventor;* for he had an interest in imposing it upon the world, in order to confirm the argument of his book, that *Printing was of the Prerogative Royal;* in opposition to the Company of Stationers, with whom he was engaged in an expensive suit of law, in *defence of the King's patents,* under which he claimed some *exclusive powers of printing.* For he tells us, that upon considering the thing, he could not but think that a public person, more eminent than a mercer, and a public purse, must needs be concerned in so public a good; and the more he considered, the more inquisitive he was to find out the truth. So that he had formed his hypothesis before he had found his Record; which he published, he says, as a friend to truth; not to suffer one man to be intituled to the worthy atchievements of another; and as a friend to himself, not to lose one of his best arguments of intituling the king to this art. But, if Atkins was not himself the contriver, he was imposed upon at least by some more crafty; who imagined that his interest in the cause, and the warmth that he shewed in prosecuting it, would induce him to swallow* for genuine, whatever was offered of the kind.

We have now cleared our hands of the Record: but the book stands firm, as a monument of the exercise of printing in Oxford six years older than any book of Caxton with date. The fact is strong, and what in ordinary cases passes for certain evidence of the age of books; but in this, there are such contrary facts to balance it, and such circumstances to turn the scale, that to speak freely, makes the date in question to have been falsified originally by the printer, either by design or mistake, and an x to have been dropt or omitted in the age of its impression.

Examples of the kind are common in the course of printing. It has been observed that several dates have been altered very artfully after publication, to give them the credit of greater antiquity. They have at Haerlem, in large quarto, a translation into Dutch of *Bartholomæus de proprietatibus rerum,* printed anno M.CCCC.XXXV, by Jacob Bellart: this they show to confirm their claim to the earliest printing, and deceive the unskilful. But Mr. Bagford, who had seen another copy with a true date, discovered the cheat; by which the L had been erased so cunningly,

* The reader will be aware that I am still copying from Luckombe.—*H.*

that it was not easy to perceive it. But besides the frauds of an after-contrivance, there are many false dates originally given by the printers; partly by design, to raise the value of their works, but chiefly by negligence and blunder. There is a Bible at Augsburgh, of ann. 1449, where the two last figures are transposed, and should stand thus, 1494: Chevillier mentions three more, one at Paris of ann. 1443; another at Lyons, 1446; a third at Basil, 1450; though printing was not used in any of these places till many years after. Orlandi describes three books with the like mistake from Mentz; and Jo. Koelhoff, who first printed about the year 1470, at Cologne, has dated one of his books anno M.CCCC. with a C omitted; and another, anno 1458; which Palmer imputes to design rather than mistake.*

But what is most to our point is a book from the famous printer, Nicholas Jenson,† of which Mr. Maittaire gave the first notice, called *Decor Puellarum,* printed anno M.CCCC.LXI. All the other works of Jenson were published from Venice, between anno 1470 and 1480, which justly raised a suspicion that an X had been dropt from the date of this which ought to be advanced ten years forward; since it was not credible that so great a master of the art, who at once invented and perfected it, could lie so many years idle and unemployed. The suspicion appeared to be well grounded from an edition of Tully's Epistles, at Venice, the first work of another famed printer, John de Spira, anno 1469; who, in the four following verses, at the end of the book, claims the honour of being the first who had printed in that city:—

> Primus in Adriacâ formis impressit aënis
> Urbe libros Spirâ genitus de stirpe Johannes.
> In reliquis sit quanta, vides, spes, lector, habenda,
> Quum labor hic primus calami superaverit artem.

It is the more current opinion, confirmed by the testimony of contemporary writers, that Jenson was the first printer at Venice; but these verses of John de Spira, published at the time, as well as the place, in which they both lived, and in the face of his rival, Jenson, without any contradiction from him, seem to have a weight too great to be over-ruled by any foreign evidence whatsoever.

* Horne, p. 186. † See Sect. vii.

These instances, with many more that might be collected, show the possibility of my conjecture; and, for the probability of it, the book itself affords sufficient proof; for, not to insist on what is less material, the neatness of the letter, and regularity of the page, &c. above those of Caxton; it has one mark that seems to carry the matter beyond probable, and to make it even certain, viz. the use of signatures, or letters of the alphabet placed at the bottom of the page, to show the sequel of the sheets and leaves of each book: an improvement contrived for the direction of the book-binders;* which yet was not practised or invented at the time when this book is supposed to be printed; for we find no signatures in the books of Faust or Schoeffer, at Mentz, nor in the more improved and beautiful impressions of John de Spira, and Jenson, at Venice, till several years later. There is a book in the public library at Cambridge that seems to fix the very time of their invention, at least in Venice, the place where the art itself received the greatest improvements: *Baldi Lectura super Codic.* &c. printed by John de Colonia and John Manthen de Gherretzem, anno M.CCCC.LXXIIII. It is a large and fair volume in folio, without signatures, till about the middle of the book, in which they are first introduced, and so continued forward: which makes it probable that the first thought of them was suggested during the time of the impression. They were used at Cologne, anno 1475; at Paris, 1476; by Caxton not before 1480; but if the discovery had been brought into England, and practised at Oxford twelve years before, it is not probable that he would have printed so long at Westminster without them.

Mr. Palmer, indeed, says that Anthony Zarot was esteemed the inventor of signatures, and that they are found in a Terence printed by him at Milan, in 1470, in which year he first printed. Allowing them to be in the Terence, and Zarot the inventor, it confutes the date of our Oxford book as effectually as if they

* In the infancy of printing, they had likewise a *Registrum Chartarum* for the convenience of the binders; to draw this, at the end of each volume, they collected the signatures, and the first words of the first four sheets of each alphabet. To abridge it, they afterwards contented themselves to express the signatures, and how often each letter was repeated; but the registrum has been now long disused.—*Rees.*

were of later origin at Venice, as there is reason to imagine from the testimony of all old books.

What further confirms the opinion is, that from the time of the pretended date of this book, anno 1468, we have no other fruit or production from the press at Oxford for eleven years next following; and it cannot be imagined that a press, established with so much pains and expense, could be suffered to lie so long idle and useless; whereas, if a conjecture be admitted, all the difficulties that seem insuperable and inconsistent with the supposed æra of printing there, will vanish at once. For, allowing the book to have been printed ten years later, anno 1478, then the use of signatures can be no objection; a foreign printer might introduce them, Caxton follow his example, and the course of printing and sequel of books published from Oxford will proceed regularly:—

Exposicio Sancti Jeronimi in Simbolum Apostolorum, *Oxon.* 1478
Leonardi Aretini in Arist. Ethic. Comment. - ib. 1479
Ægidius de Roma, &c. de Peccato Originali - ib. 1479
Guido de Columna de Historia Trojana, per T. R. ib. 1480
Alexandri ab Hales, &c. expositio super 3 Lib. de Animâ per me Theod. Rood - - - ib. 1481
Franc. Aretini Oratoris Phalaridis Epist. e Græco in Latin. Versio.—Hoc opusculum in Alma Universitate Oxoniæ, a natali Christiano ducentesima & nonagesima septima Olympiade feliciter impressum est. [That is] 1485

Hoc Theodoricus Rood, quem Collonia misît
Sanguine Germanus, nobile pressit opus;
Atque sibi socius Thomas fuit Anglicus Hunte:
Dii dent ut Venetos exuperare queant!
Quam Jenson Venetos docuit vir Gallicus artem,
Ingenio didicit terra Britanna suo.
Cælatos Veneti nobis transmittere libros
Cedite, nos aliis vendimus, O Veneti.
Quæ fuerat vobis ars primum nota, Latini*
Est eadem nobis ipsa reperta premens.†

* In the 'Additional Remarks' at the end of Bowyer and Nichols's Origin of Printing, it is suggested that the reading of the word *Latini* might be the vocative case plural, *O Romans.*

† This word stood originally contracted thus *prēs*—which has been supplied by Dr. Middleton as *premens* and by Dr. Ducarel as *præsens.*

Quamvis sejunctos toto canit orbe Britannos
Virgilius, placet his lingua Latina tamen.*

These are all the books printed at Oxford, before 1500, that have hitherto made their appearance and we have any certain notice of. We have inserted the colophon and verses of the last, because they have something curious and historical in them. We know of but another instance of the date of a book computed by Olympiads—*Ausonii Epigrammatωn libri*, &c. printed at Venice, 1472, with this designation of the year at the end—"*A Nativitate*

* *Translation.*—This little Work was auspiciously imprinted in the pious University of Oxford, in the two hundred and ninety-seventh Olympiad from the Birth of Christ.

[Reckoning each Olympic Term to consist of five years, instead of four, the date of this book will accord with the year 1485.]

Theodoric Rood, a German born,
O' the city of Cologne,
That he this curious book did print,
To all men maketh known;
And his good partner, Thomas Hunte,
An Englishman he was:
Now aid them Heav'n! that so they may
Venetian skill surpass.

A man of France, nam'd Jenson, taught
The Venetians this fair art,
Which Britain, by her industry,
Did to herself impart.
Engraved books to send to us,
Which in deep lore excel,
Cease, O Venetians! yield to us—
We to all others sell.

The language, Romans, which by you
So long before was known
Is now at length by us attain'd
And used with our own.
The Britons severed from the world
Though Virgil truly sung,
They now can well his works peruse
In his own Latin tongue.

Christi ducentesimæ nonagesimæ quintæ Olympiadis anno 2," where the printer, as in the present case, follows the common mistake, both of the ancients and moderns, of taking the Olympiad for a term of five years complete; whereas it really included but four, and was celebrated the fifth; as the Lustrum likewise of the Romans. In our Oxford book the year of the Olympiad is not distinguished, as in that of Venice, so that it might possibly be printed somewhat earlier, and nearer to the rest, in order of time: but as the 7th verse seems to refer to the statute of the 1st of Richard III. prohibiting the Italians from importing and selling their wares in England by retail, &c. excepting books written or printed,* which act passed 1483; so that this book of Rood's could not be printed before that year. The third verse rescues from oblivion the name of an English printer, Thomas Hunte, not mentioned before by any of our English writers, nor discovered in any other book. But what is the most remarkable, and worthy the greatest stress, is, that in the sixth verse, the art and use of printing is affirmed to have been first set on foot, and practised in this island by our own countrymen; which must consequently have a reference to Caxton, who has no rival of this country to dispute the honour with him. And so we are furnished at last from Oxford itself, with a testimony that overthrows the date of their own book.

Theodoric Rood, we see, came from Cologne, where Caxton had resided many years and instructed himself in the art of printing, 1471; and being so well acquainted with the place, and particularly the printers of it, might probably be the instrument of bringing over this or any other printer, a year or two before (if there really was any such) to be employed at Oxford; and the obscure tradition of this fact gave rise to the fiction of the record. But,

* This act says, "Provided always, that this act, or any parcel thereof, or any other act made, or to be made, in this said parliament, shall not extend, or be in prejudice, disturbance, damage, or impediment, to any artificer, or merchant stranger, of what nation or country he be, or shall be of, for bringing into this realm, or selling by retail, or otherwise, any books written or printed, or for inhabiting within this said realm for the same intent, or any scrivener, illuminor, reader, or printer of such books, which he hath, or shall have to sell by way of merchandize, or for their dwelling within this said realm, for the exercise of the said occupation; this act, or any part thereof notwithstanding."

however this be, it seems pretty clear, that Caxton's being so well known at Cologne, and his setting up a press at home immediately after his return from that place, which could hardly be a secret to Rood, must be the ground of the compliment paid to our country, and the very thing referred to in the verses.

There is another book, in the public library at Cambridge, without the name of printer or place; which, from the comparison of its types with those of Rood, is judged to be of his printing, and added to the catalogue of his works; but the identity of the letter in different books, though a probable argument, is not a certain one for the identity of the press.

Besides this early printing at Oxford, there are several proofs of the use of it, likewise, about the same time, in the city of London, much earlier than some writers have imagined, with the names of the first printers there, who are not taken notice of by them; viz. John Lettou and Will. de Machlinia. Their productions were on a rude and coarse Gothic character, more rude than Caxton; and, from both these printers in partnership, may be seen the first edition of the famous Littleton's Tenures printed at London, in a small folio, without date; which his great commentator, the lord chief justice Coke, had not seen or heard of: for in the preface to his Institutes, he says, that this work was not published in print either by judge Littleton himself, or Richard his son; and that the first edition, that he had seen, was printed at Rouen in Normandy *ad instanciam Richardi Pynson*, printer to king Henry VIII. They have this edition also in the library at Cambridge, but it is undoubtedly later by thirty or forty years than the other we are speaking of; which, as far as we may collect from the time noted above, in which John Lettou printed, was probably published, or at least put to the press by the author himself, who died ann. 1481.

We shall now return to Caxton, and state, as briefly as we can, the positive evidence that remains of his being the first printer of this kingdom; for what has already been alleged is chiefly negative or circumstantial. And here, as before hinted, all our writers before the Restoration, who mention the introduction of the art amongst us, give him the credit of it, without any contradiction or variation. Stowe, in his Survey of London, speaking of the 37th year of Henry VI. or ann. 1458, says, "the noble science of printing was

about this time found at Magunce by John Guttemberg, a knight; and William Caxton, of London, mercer, brought it into England, about the year 1471, and practised the same in the Abby of Westminster." Trussel gives the same account in the history of Henry VI. and sir Richard Baker in his Chronicle: and Mr. Howell, in his Londinopolis, describes the place where the Abbot of Westminster set up the first press for Caxton's use, in the Almonry or Ambry. As a confirmation of this opinion, Mr. Newcourt, in his Repertorium, tom. i. p. 721, has it thus: "St. Ann's, an old chapel, over against which the lady Margaret, mother to king Henry VII. erected an alms-house for poor women, which is now (in Stowe's time) turned into lodgings for singing-men of the college. The place, wherein this chapel and alms-house stood, was called the Eleemosinary or Almonry, now corruptly the Ambry [Aumbry], for that the alms of the abby were there distributed to the poor; in which the abbot of Westminster erected the first press for book-printing, that ever was in England, about the year of Christ 1471, and where William Caxton, citizen and mercer of London, who first brought it into England, practised it." This chapel was in a retired place, and free from interruption; and from this, or some other chapel, 'tis supposed the name of Chapel has been given to all printing-houses in England ever since.* But above all, the famous John Leland, library keeper to Henry VIII, who, by way of honour, had the title of "The Antiquary," and

* ..... Each printer hence, howe'er unblest his walls,
E'en to this day, his house a CHAPEL calls.
M'CREERY, "*The Press*," p. 18.

It is most probable that Caxton, after the manner observed in other monasteries, erected his press near one of the chapels attached to the aisles of the abbey, and his *Printing-office* might have superseded the use of what was called the *Scriptorium* of the same. No remains of this once interesting place can now be ascertained; indeed, there is a strong presumption, that it was pulled down in making alterations for the building of Henry VIIth's chapel; for if Henry made no scruple to demolish the chapel of the Virgin (See Pennant's London, p. 78, 3rd Edit.) in order to carry into effect his own plans for erecting the magnificent one which goes by his own name, the office of the Printer stood little chance of escaping a similar fate! According to Bagford, "Caxton's office was afterwards removed into King-street, but whereabouts, or what sign, is not known." *See Dibdin's Typ. Antiq.* vol. i. p. ci. cii.

lived near to Caxton's own time, expressly calls him the first printer of England, and speaks honourably of his works: and as he had spent some time in Oxford, after having first studied and taken a degree at Cambridge, he could hardly be ignorant of the origin and history of printing in that University. We cannot forbear adding, for the sake of a name so celebrated, the more modern testimony of Mr. Henry Wharton, who affirms Caxton to have been the first that imported the Art of Printing into this kingdom; on whose authority the no less celebrated M. du Pin styles him likewise the first printer of England.

To the attestation of our historians, who are clear in favour of Caxton, and quite silent concerning an earlier press at Oxford, the works of Caxton himself add great confirmation: the rudeness of the letter, irregularity of the page, want of signatures, initial letters, &c. in his first impressions, give a prejudice at sight of their being the first productions of the art amongst us. But besides these circumstances, notice has been taken of a passage in one of his books, that amounts, in a manner, to a direct testimony of it:—"Thus end I this book, &c. and for as moche as in wrytyng of the same my penne is worn, myn hande wery, and myn eyen dimmed with overmoche lokyng on the whit paper—and that age crepeth on me dayly—and also because I have promysid to dyverce gentilmen and to my frendes to adresse to hem as hastely as I myght this sayd book, therefore I have practysed, and lerned at my grete charge and dispense to ordeyne this sayd book in prynte after the maner and forme as ye may here see, and is not wreton with penne and ynke as other bokes ben, to thende that every man may have them attones, for all the books of this storye named, the Recule of the Historyes of Troyes, thus emprynted as ye here see, were begonne in oon day and also finished in oon day, &c." Now this is the very style and language of the first printers, as every body knows, who has been at all conversant with old books. Faust and Schoeffer, the inventors, set the example in their first works from Mentz, by advertising the public at the end of each that they were not drawn or written by a pen (as all books had been before), but made by a new art and invention of printing or stamping them by characters or types of metal set in forms. In imitation of whom the succeeding printers, in most cities of Europe, where the

art was new, generally gave the like advertisement, as we may see from Venice, Rome, Naples, Verona, Basil, Augsburg, Louvain, &c. just as our Caxton, in the instance above.

In Pliny's Natural History, printed at Venice, we have the following verses :—

Quem modo tam rarum cupiens vix lector haberet;
  Quiq; etiam fractus pœne legendus eram:
Restituit Venetis me nuper Spira Johannes;
  Exscripsitq; libros ære notante meos.
Fessa manus quondam, moneo, calamusq; quiescat:
  Namq; labor studio cessit & ingenio. M.CCCC.LXVIIII.

At the end of Cicero's Philippic Orations :—

Anser Tarpeii custos Jovis, unde, quod alis
  Constreperes, Gallus decidit; Ultor adest
ULDRICUS GALLUS: ne quem poscantur in usum,
  Edocuit pennis nil opus esse tuis.
Imprimit ille die, quantum non scribitur anno,
  Ingenio, haud noceas, omnia vincit homo.

In a Spanish History of Rodericus Santius, printed at Rome:—

"De mandato R. P. D. Roderici Episcopi Palentini Auctoris hujus libri, ego UDALRICUS GALLUS sine calamo aut pennis eund. librum impressi."

In Eusebius's Chronicon, printed in Latin at Milan :—

Omnibus ut pateant, tabulis impressit ahenis
  Utile Lavania gente Philippus opus.
Hactenus hoc toto rarum fuit orbe volumen,
  Quod vix, qui ferret tædia, scriptor erat.
Nunc ope Lavaniæ numerosa volumina nostri
  Ære perexiguo qualibet urbe legunt.

As this is a strong proof of his being our first printer, so it is a probable one that this very book was the first of his printing. Caxton had finished the translation of the two first books at Cologne, in 1471: and having then good leisure, resolved to translate the third at that place, in the end of which we have the passage recited before. Now, in his other books, translated, as this was, from the French, he commonly marks the precise time

of his entering on the translation, of his finishing it, and of his putting it afterwards into the press; which used to follow each other with little or no intermission, and were generally completed within the compass of a few months; so that in the present case, after he had finished the translation, which must be in or soon after 1471, it is not likely that he would delay the impression longer than was necessary for the preparing his materials; especially as he was engaged by promise to his friends, who seem to have been pressing and in haste, to deliver copies of it to them as soon as possible.

But as in the case of the first printer, so in this of his first work, we have a testimony also from himself in favour of this book: for we have observed that, in the recital of his works, he mentions it the first in order, before "the Boke of Chesse," which seems to be a good argument of its being actually the first. "When I had accomplished dyvers werkys and hystorys translated out of Frenshe into Englyshe at the requeste of certayn lordes, ladyes, and gentylmen, as the Recuyel of the Hystoryes of Troye, the Boke of Chesse, the Hystorye of Jason, the Hystorye of the Mirrour of the World—I have submysed myself to translate into Englyshe the Legende of Sayntes, called Legenda Aurea in Latyn—and Wylyam, Erle of Arondel, desyred me—and promysed to take a resonyble quantyte of them—sente to me a worshipful gentylman—promysing that my sayd lord should, durying my lyf, give and graunt to me a yerely fee, that is to note, a bucke in sommer and a doo in wynter," &c.

All this, added to the common marks of earlier antiquity, which are more observable in this than in any other of his books, viz. the rudeness of the letter, the incorrectness of the language, and the greater mixture of French words than in his later pieces, makes us conclude it to be his first work, executed when he came fresh from a long residence in foreign parts. Nay, there are some circumstances to make us believe that it was actually printed abroad at Cologne, where he finished the translation, and where he had been practising and learning the art; for, after the account given above, of his having learnt to print, he immediately adds, "whiche boke I have presented to my said redoubtid lady Margrete, Duchesse of Burgoyne, &c. and she hath well acceptid hit, and largely rewarded me," &c. which seems to imply his

continuance abroad till after the impression as well as the translation of the book. The conjecture is much strengthened by another fact attested of him—that he did really print at Cologne the first edition of *Bartholomæus de proprietatibus rerum*, in Latin; which is affirmed by Wynkyn de Worde, in an English edition of the same book, in the following lines :—

> And also of your charyte beare in remembraunce
> The soule of William Caxton, first printer of this boke,
> In Laten tongue at Coleyn, himself to advaunce,
> That every well disposyd man may thereon loke.

It is certain that the same book was printed at Cologne, by Jo. Koelholf, and the first that appears of his printing, 1470, whilst Caxton was at the place and busying himself in the art; and if we suppose him to have been the encourager and promoter of the work, or to have furnished the expense of it, he might possibly, on that account, be considered at home as the author of it.

It is now time to draw to a conclusion, to avoid being censured for spending too much pains on an argument so inconsiderable; where the only view is to set right some points of history that have been falsely or negligently treated by our writers, and, above all, to do a piece of justice to the memory of our worthy countryman, WILLIAM CAXTON, and not suffer him to be robbed of the glory so clearly due to him of having first introduced into this kingdom an art of great use and benefit to mankind: a kind of merit that, in the sense of all nations, gives the best title to true praise, and the best claim to be commemorated with honour to posterity: and it ought to be inscribed on his monument, what is declared of another printer, Bartholomeus Bottonus of Reggio—"PRIMUS EGO IN PATRIA MODO CHARTAS ÆRE SIGNAVI, ET NOVUS BIBLIOPOLA FUI," &c.*

THE first biographer of Caxton was the reverend John Lewis, minister of Margate, in Kent, the early friend and patron of Mr. Ames: in 1737 he published "The Life of Mayster Wyllyam Caxton of the Wealde of Kent; the first Printer in England. In

* So far Luckombe.

which is given, an Account of the Rise and Progress of the Art of Pryntyng in England, during his time, till 1493. Collected by John Lewis, Minister of Mergate in Kent;" royal 8vo.

He was a native of that part of Kent which was formerly denominated the *Wealde*, from the wood with which it abounded; but the exact time of his birth has not been recorded by his biographers.* In his preface to The History of Troy, Caxton has mentioned the place of his nativity, but unfortunately the day, the month, and even the year, are alike omitted. Circumstances, however, appear to supply this deficiency; and from their concurrence, we are enabled, with a tolerable degree of precision, to fix the time of his birth about the year 1412. Of his parents little more is known, than that they were respectable in their character, and decent in their circumstances; but nothing appears in their history to require any digressive retrospection. In another preface Caxton informs us, that he received his learning from his parents. This, however, his biographer intimates, amounted to nothing more than reading, writing, and a knowledge of arithmetic; which, in those days of darkness, included no small portion of a liberal education; and of this learning, he received the greater part from his mother.

As nothing is known of his early years, it is probable that he remained under the paternal roof until he had attained the age of seventeen or eighteen, at which time he was removed to London, and put an apprentice with Mr. Robert Large, an eminent mercer, in the parish of St. Olave's, Old Jewry. This gentleman was chosen sheriff in 1430, and had the honour of being Lord Mayor of London, in 1439. It appears that Caxton served him with much fidelity; since, as a testimony of his esteem, he bequeathed to him a legacy of 20 marks,† which, at this period, was no inconsiderable sum.

Caxton, on the death of his master, and on receiving his legacy,

* Carter, in his History of Cambridgeshire, says, "Caxton was a Cambridgeshire man, born at Caxton, in that county, from which he takes his name." Though nothing can possibly, in the way of proof, exceed in absurdity such proof as this, yet I suppose geometricians would scarcely be willing to lend me their phrase, *demonstratio ad absurdum*, to express my contempt of an idea so ridiculously preposterous.

† This legacy has been variously stated, 23 marks, 34 marks, &c.; but the will, preserved in the Prerogative Office, proves it to have been 20 marks.

resolved to pay a visit to foreign countries. He accordingly, on leaving his native land, having acquired an intimate acquaintance with trade, embarked in the character of a merchant, agent, or factor;* and, during thirty years, took up his occasional abode in Brabant, Flanders, Holland, and Zealand. But his knowledge of commercial transactions which he acquired abroad, rather increased than diminished his reputation at home, notwithstanding his long and continued absence.

In the year 1464, his name was joined with that of Richard Whitehill, esq. in a commission from Edward IV, to conclude a treaty of trade and commerce between him and the Duke of Burgundy. This circumstance shows, that his name was not unknown at the English court; and that the report of his talents and integrity had been sufficiently favourable to raise him to this exalted office.

About four years after the previous transaction, the sister of Edward was married to the young Duke of Burgundy, at which time Caxton was incorporated in her retinue. He has himself recorded, that he was "servant of her Grace, and that he received of her an yearly fee, and many other great and good benefits." In what capacity he stood, we have not been informed; but as her Grace occasionally found fault with his English, and desired him to correct his language, we may infer that he was treated with a degree of familiarity, which could not belong to a subordinate domestic.

Printing had now been invented about 18 years, and carried to an unexpected degree of perfection. It was practised at Mentz in Germany; but the art had been kept a profound secret from the world. "Books," however, Mr. Caxton has observed, "were not multiplied at this period, in a manner so extensive as might have been expected;" and little doubt can be entertained as to the accuracy of his statement, since his restless curiosity would not permit him to remain ignorant of such an event.

His worthy patroness, the Duchess of Burgundy, urged him to undertake the translation into English, of a French book, entitled

* "It is pretty certain (says Mr. Dibdin) that mercers, in the time of Caxton, were general merchants, trading in all kinds of goods, and that they united a love of literature and of books with their other multifarious concerns. Hence, probably, Caxton acquired his passion for books and learning—a passion which never seems to have deserted him."

"Recuyell of the Historyes of Troy." This seems to have been projected by her, with a design to introduce the Art of Printing into England, whenever a favourable opportunity should offer.

The little knowledge which Caxton had acquired of the French tongue, and his partial forgetfulness of the English, after a residence in foreign parts of nearly thirty years, led him to think himself but badly calculated for such an undertaking. His patroness, however, urging him to begin, he entered on his work, though with much reluctance; but after proceeding a little way in his translation, he dropped it altogether for nearly two years. The Duchess at length sent for him, to inquire into the progress he had made, and to read what he had translated. Caxton produced what he had finished, and she examined three or four leaves, with the English of which she found some fault; but instead of discouraging him, he was desired to resume his labours. Being unwilling to incur her displeasure by disobedience, he renewed his application, and soon brought his work to a conclusion. It was begun in 1468, and was finished in 1471. The Duchess received it kindly, and handsomely rewarded him for his trouble.

In the year 1462, Mentz was taken by the Duke of Saxony; in consequence of which, most of the artificers employed by John Fust, or Faustus, the great inventor of printing, were scattered abroad; and there can be little doubt that Caxton, who at this time resided near Mentz, availed himself of this opportunity to make himself acquainted with an art, the knowledge of which he had spared neither expense nor trouble to obtain. It is generally understood, that by the aid of these men, he established a printing press at Cologn, where he printed the first edition of the work he had translated. Such copies as were preserved bore all the marks of antiquity. The letters were rude, and the language was incorrect, and more mixed with French terms than any of his expressions were after his return to England. This, Mr. Lewis, in his Life of Caxton, thinks to be the first book that he ever printed.

While residing at Cologne, he became acquainted with Wynkyn de Worde, and Theodoric Rood, a native of that place, and Thomas Hunte, his own countryman, who were all printers. De Worde came afterwards to England with Caxton, and continued with him to the time of his death. The others soon followed, and

settled in Oxford, where they established a press, and printed books in Latin.

The number of books printed by Caxton, at Cologn, is not known with more precision, than the exact time of his coming into England. The same uncertainty rests on the title of the first book that ever issued from an English press. Mr. Lewis asserts, that the "Game and Play of Chess," was the most early specimen, and that it appeared in the year 1472, or 1473, and in this opinion he is confirmed by others; while, on the contrary, it is contended, that this supposition involves difficulties which cannot easily be overcome.

In 1468, the Earl of Warwick formed a conspiracy to dethrone Edward IV, and so successful was he in the commencement of his attempt, that he compelled the King to flee into Flanders. From this place, having procured assistance from the Duke of Burgundy, he returned, slew Warwick, defeated his army, and regained his throne. Caxton had not been unknown to him prior to this event. But of this favourable circumstance he is said to have availed himself, and to have come into England about this time, under the royal protection. It is, however, an admitted fact, that Caxton was at Cologn in 1471. Hence, some have concluded, that he occasionally visited England before that time, to make arrangements respecting the establishment of printing in this country; but that he continued his business at Cologn, until the necessary preparations were made; so that, according to these statements, he can scarcely be considered as fully at work in this country until 1473 or 1474.

The first book printed by Caxton, that has any date, is said to have been printed at Westminster, about six years after 1471. But Mr. Caxton expressly informs us, that his book, the "Game of Chess," was printed on the last day of March, 1471. Unfortunately, however, he does not say whether it was done in England or Cologn, and it is now perhaps totally impossible to ascertain the fact.

Of Caxton's typographical labours, between the years 1471 and 1474 we have no recorded account, although it is extremely probable, that a curious and active mind like his, just engaged in the exercise of a newly-discovered and important art, would have turned its attention to a variety of objects for publication: neither

has any information been obtained of the exact period when he returned to England, and introduced the Art of Printing into the metropolis. Thus much, however, is certain, that previously to the year 1477, Caxton had quitted the Low Countries, and in that year was fairly at work in Westminster, but whether in the Abbey or in his own house is not certain. At that period, Thomas Milling, Bishop of Hereford, held the abbotship of Saint Peter's *in commendam;* he has been represented as a lover of learning, and is said to have fostered Caxton in his own house, and to have assigned him for his business a part of the Abbey. Caxton had, no doubt, brought over with him the necessary materials and implements, but the particular spot where he first brought them into use, or fixed the first press, cannot now be exactly traced. A cipher introduced by Caxton into many of his books, said to denote the year 1474, has been adduced as an evidence of the year in which he began to print in England; but the exact time when this cipher was first used, can hardly be determined with exactness. It is known to have been inserted in 1480; but how many years prior to this, is involved in uncertainty.

In 1478, several books were printed by Caxton, of which the titles have been preserved; but nothing can be inferred, either from their numbers or their contents, except the progress of the art, which in England had only just started into existence. During this year, Mr. Caxton buried his father, who appears to have lived with him at Westminster. In the accounts of the warden of the parish-church of St. Margaret, the following article is inserted. "Item. The day of bureyinge of William Caxton for ij torches and iiii tapers xx d."

Mr. Caxton continued to pursue his business with reputation and success, from this period, until the year 1491 or 1492, during which intermediate years, numerous volumes issued from his press. But few rivals, however, appeared to share his fame, or to divide his emoluments. In the year 1483, no more than four printing-presses are known to have been established in England. These are, Caxton in Westminster, Rood and Hunte in Oxford, an anonymous one in St. Alban's, and De Machlinia, London. During this same year, 1483, an act of Parliament was passed, giving leave "to any artificer or merchant to bring into this realm and sell any books whether written or printed." Another act

states as a reason for the former, that "few printers within this realm could well exercise the craft of printing."

It appears, that Caxton continued his employment at Westminster, but not in the Abbey, until the time of his death. This event took place, according to the account given by the churchwardens, and in Mr. Lewis's observations on it, between June 1491, and June 1492. It is not improbable that it was near the former period, as Mr. Ames has limited the time to 1491. Of the death and burial of William Caxton, the following memorial has been preserved in the account of the wardens of the parish church of St. Margaret, Westminster, from the 17th of May, 1490, to the 3rd of June, 1492, viz. 1492. "Item; atte bureyng of William Caxton for iiii torches...vi s. viii d. Item, for the belle atte same bureynge... vi d."

Mr. Lewis seems to think, as no mention is made either of Caxton's wife or children, that he was never married. Palmer's continuator, however, says of R. Pynson, that "he was son-in-law to Caxton;" but for this assertion, no evidence being produced, the fact has been much doubted. Pynson it appears was a printer. And it seems highly probable, if he had really married Caxton's daughter, that he would have succeeded him in his business, which it is well known was not the case. It does not appear that Caxton left any will, or at least, if he did, that will cannot be found. A discovery of this document would remove all doubts from this question, and enable us to know to whom he bequeathed his property.

As a merchant, Caxton appears to have been a man of strict integrity; and as a tradesman, when he established printing, he was duly attentive to his business.

Whoever turns over his printed works, must contract a respect for him, and be convinced that he preserved the same character through life of an honest, modest man; greatly industrious to do good to his country, to the best of his abilities, by spreading among the people such books as he thought useful to religion and good manners, which were chiefly translated from the French.* The novelty and usefulness of his art recommended him to the special notice and favour of the Great; under whose protection, and at whose expense, the greatest part of his works were pub-

* Dr. C. Middleton, p. 20.

lished. Some of them are addressed to Edward IV; his brother the Duke of Clarence; and their sister the Duchess of Burgundy; in whose service and pay he lived many years, before he began to print; as he oft acknowledges with great gratitude. He printed likewise for the use, and by the express order, of Henry VII; his son Prince Arthur; and many of the principal Nobility and Gentry of that age: all which confirms the notion of his being the First Printer; for he would hardly have been so much caressed and employed, had there been an earlier and abler artist all the while at Oxford, who yet had no employment at all for the space of eleven years.

It has been generally asserted and believed, that all his books were printed in the Abbey of Westminster; yet we have no assurance of it from himself, nor any mention of the place before 1477: so that he had been printing several years without telling us where. There is one mistake, however, worth the correcting, that the writers have universally fallen into, and taken up from each other, that John Islip was the Abbot who first encouraged the Art, and entertained the artist in his house: whereas you will find upon inquiry, that he was not made Abbot till four years after Caxton's death; and that Thomas Milling was Abbot in 1470, made bishop of Hereford a few years after, and probably held the Abbey in commendam in 1485, in which John Estney next succeeded: so that Milling, who was reputed a great scholar, must have been the generous friend and patron of Caxton, who gave that liberal reception to an art so beneficial to learning.

This shews how unsafe it is to trust to common history, and how necessary to recur to original testimonies, where we would know the state of facts with exactness. Mr. Echard, at the end of Edward IVth's reign, among the learned of that age, mentions William Caxton as a writer of English history, but seems to doubt whether he was the same with the printer of that name. Had he ever looked into Caxton's books, the doubt had been cleared; or had he consulted his Chronicle of England, which it is strange that an English historian could neglect, he would have learnt at least to fix the beginning of that reign with more exactness, as it is remarked before, just two years earlier than he has placed it.

There is no clear account left of Caxton's age: but he was

certainly very old, and probably above fourscore, at the time of his death.* In the year 1471 he complained, as may be seen, of the infirmities of age creeping upon him and feebling his body; yet he lived twenty-three years after, and pursued his business with extraordinary diligence, in the Abbey of Westminster, till the year 1494, in which he died; not in the year following, as most who write of him affirm. This appears from some verses at the end of a book, called, "Hilton's Scale of Perfection," printed in the same year.

Infynite laud with thankynges many folde
  I yelde to God me socouryng with his grace
This boke to finyshe whiche that ye beholde
  Scale of Perfeccion calde in every place

Whereof th auctor Walter Hilton was
  And Wynkyn de Worde this hath sett in print
In William Caxstons hows so fyll the case
  God rest his soule. In joy ther mot it stynt.
Impressus anno salutis M.CCCC.LXXXXIIII.

His books are printed on paper made of the paste of linen rags, very fine and good, and not unlike the thin vellum on which they used to write their books at that time.

Notwithstanding he had printed for the use of Edward VI, and Henry VII, there are no grounds for the notion which Palmer takes up, that the first Printers, and particularly Caxton, were sworn Servants and Printers to the Crown; for Caxton gives not the least hint of any such character or title: however, it seems to be instituted not long after his death; for of his two principal workmen, Richard Pynson, and Wynkyn de Worde, the one was made Printer to the King; the other to the King's mother, the Lady Margaret. Pynson gives himself the first title, in "The Imitation of the Life of Christ," printed by him at the command of Lady Margaret, who had translated the fourth book of it from the French, 1504; and Wynkyn de Worde assumes the second, in "The Seven Penitential Psalms," expounded by Bishop Fisher, and printed in the year 1509.

* The Roxburghe Club, at the Anniversary Meeting, June 1819, resolved to erect a Monument, with a black-letter inscription, to the memory of Caxton.

If, however, the art, or those who practised it, sought the royal favour and countenance, it was a privilege which monarchs might glory to confer. The benevolent of mankind, and more especially kings, as the fathers of their people, cannot bestow more valuable gifts on their wide-extended family, than by encouraging among them the exercise of an investigation so adapted to their instruction; so calculated for their improvement in social and in public virtue.*

All our writers on Printing observe, that Caxton distinguished the books of his printing by a particular device, consisting of the initial letters of his name, with a cipher between, which they interpret to stand for 74, and to refer to the first year of his printing in England; but it was the opinion of Dr. Middleton, that he began to use this cipher near the end of his life, and in his latest works; The Boke of Eneydos, printed in 1489, being the first it appeared in, and it generally appeared in those he afterwards published.†

Mr. Caxton's first performances are very rude and barbarous. Lewis says, "he used a letter resembling the hand-writing then in use. His *d*, at the end of a word, is very singular. He used the characteristics which we find in English manuscripts before the Conquest, Instead of commas and periods, he used an oblique stroke, thus /, which the Dutch printers do to this day in their Gothic impressions. His letter was peculiar and easily known, being a mixture of Secretary and Gothic as to shape; and sometimes of Great Primer as to size;‡ especially in printing proper names. He had a way of joining almost any two characters together. In his titles he used the German Text, or what our printers call the Gothic, of the size of Great Primer, and sometimes he mixed it with his Secretary or common print, as our printers now do the italic. Like other printers of his time, he never used any direction or catch-word, but placed the signature

* Stower, p. 32.

† Horne in his Bibliography, gives three cuts of the devices used by Caxton, but each consists of the same Letters and Cipher, varying in the display and ornaments.

‡ For more particulars and fac-similes of his type, see the Section on Type-Founding.

where that now stands; and rarely numbered his leaves, and never his pages. In most of his books he only printed, as the custom then was, a small letter at the beginning of the chapters, to intimate what the initial or capital letter should be, and left that to be made by the illuminor, who wrote it with a pen, with red, blue, or green ink; but in some of his books he used two-line letters of a Gothic kind. As he printed long before the present method of adding the Errata at the end of books was used, his extraordinary exactness obliged him to take a great deal more pains than can easily be imagined; for, after a book was printed off, his method was, to revise it, and correct the faults in it with red ink; this being done to one copy, he then employed a proper person to correct the whole impression."

So far as any memorials of Caxton's moral character have been preserved, the circumstances are much in his favour. He has uniformly been represented, as always having the fear of God and a deep sense of religion resting upon his mind. It is not, however, to be expected, that he should have risen above those fogs and clouds, which, prior to the Reformation, involved the moral world in darkness. His attachment to the papal doctrine, and to the ceremonials of the Romish church, seemed always to partake of sincerity, even when it led him to advocate the absurdities which prevailed. In the crusades he found much to commend, and but little to blame; and was ready on most occasions to defend these fanatical expeditions against all who presumed to question their propriety. To the pilgrimages of his day, and to those of his ancestors, he was much devoted, though it does not appear that he actually engaged in any of those painful journeys which he seemed so much to admire in others. This, however, seems to have arisen from the circumstances of his situation in life; and it ought not to be considered as a proof of his insincerity. To the writings of Chaucer he was much attached; and such was his friendship for the poet, that he desired people to pray for his soul, in which exercises there can be no doubt that he also devoutly engaged. There is written in a very old hand, in a *Fructus Temporum* of Mr. Ballard's, of Camden in Gloucestershire, the following note. "Of your charite pray for the soul of Mayster Wyllyam Caxton, that in hys tyme was a man of moche

ornate and moche renommed wysdome and connyng, and decesed full crystenly the yere of our Lord M.cccc.lxxxxi.

> "Moder of Merci shyld hym from thorribul fynd.
> And bryng hym to lyff eternall that neuyr hath ynd."

But these superstitions may rather be considered as characteristic of the age in which Caxton lived, than as peculiarities exclusively applicable to himself. The books which he published were almost wholly of a moral tendency, and the prefaces to several, that he occasionally wrote, partook of the same spirit. His errors, therefore, were rather those of the judgment than of the heart; on which account they are more entitled to the sigh of pity than to the sneer of contempt. To draw a line between vincible and invincible ignorance on all occasions, is not the province of mortals. This can only be done by that All-wise Being, who, without the possibility of error, can always distinguish between infirmity and vice; and whose goodness arranges those various dispensations under which his creatures are placed.

For a Catalogue of the Books printed by Caxton, and his immediate successors, I shall refer my reader to the Rev. Mr. Dibdin's Typographical Antiquities, where they are most minutely described. In this place I must confine the account to those which were the first, or most remarkable, of their productions.

The first book known to be printed in English, and by Caxton, is intituled, *Recuyel of the Histories of Troy*;* which, notwithstanding it was not printed in England, yet being printed by him, and being full of information, we begin with it, which we hope will be well received. It was printed in 1471. After he had finished the translation, which must have been in the year 1471, or soon after, he would not, of course, delay the impression longer than necessary; since, as he informs us in the conclusion of the third

* In the Court of Burgundy, he became intimate with Raoul le Fevre, Chaplain to the Duke, whose *Recuyell of the Historyes of Troye*, he translated in 1468, and published his English version in 1471. The original was the first book printed by Caxton; it bears date 1464-7. It is amply described by Mr. Dibdin, in his *Typographical Antiquities*, Vol. I. The "Oration of John Russel, on Charles Duke of Burgundy being created a Knight of the Garter (1469)", was the second: and the translation of the former was the third book which issued from his press.—*Horne*, p. 188.

volume of that work, he was engaged by promise to his friends, who seem to have been pressing and in haste, to deliver copies of it to them as soon as possible. This it is likely he printed at Cologne. In the recital of his works he names this before the Game of Chess. It bears marks, likewise, of earlier antiquity than any other, in the rudeness of its letter, the incorrectness of the language, and the great mixture of French words found in it.

The Game at Chess. As this was the first book printed in England we shall insert the dedication "To the right noble, right excellent and vertuous prince George, duc of Clarence, erle of Warwick and Salisburye, grete chamberlayn of Englond, and leutenant of Irelond, oldest brother of kynge Edward, by the grace of God kynge of Englond and of Fraunce, your most humble servant, William Caxton, amonge other of your servantes, sends unto yow peas, helthe, joye, and victorye upon your enemeys, right high puyssant and redoubted prince. For as much as I have understand and knowe, that ye are enclined unto the comyn wele of the kynge, our said soveryn lord, and his nobles, lordes and comyn peple of his noble royame of Englond, and that ye sawe gladly the inhabitant of the same informed in good, vertuous, prouffitable and honeste maners, in whiche your noble persone, wit guydyng of youre hous, haboundeth, gyuyng lyght and ensample unto all other. Therefore I have put me in devoyr to translate a lityll booke late comen into myn handes, out of Frenshe into Englishe, in which I fynde thautorities, dictes of auncient doctours, philosophers, poetes, and of other wyse men, which ben recounted and applyed unto the moralitie of the publique wele, as well of the nobles as of the comyn peple, after the game and playe of the Chesse, whiche booke, right puyssand and redoubtid lord, I have made in the name, and under the shadew of your noble protection, not presumyng to correcte or enpoigne ony thynge agenst your noblesse; for, God be thanked, your excellent renome shyneth as well in straunge regions, as within the royame of Englond, gloriously unto your honoure and laude, whyche God multeplye and encrese. But to thentent that other of what estate and agrese they stand in, may see in this said lityll booke, that they governed themself as they ought to doo; wherefor for my right dere redoubtid lord, I requyr and supply your good grace not to desdaygne to reseyve this sayd lityll booke in gree and

thanke, as well of me your humble and unknowen servant, as of a better and greater man than I am, for the right good wylle that I have had to make this lityll work in the best wise I can, ought to be reputed for the fyat and dede; and for more clerely to precede in this sayd booke, I have ordyned that the chapiters been sete in the beginning, to thende that ye may see more playnly the matter whereof the booke treteth," &c.—The contents begin thus: "This booke conteyneth iiii traytees, the first traytee is of the invencion of this play of the chesse, and conteyneth iii chapiters," &c.—and ends thus: "And therfore, my right undoubted lord, I pray Almighty God to save the kynge our soverain lord, and to give hym grace to yssue as a kynge, and tabounde in all vertues, and to be assisted with all other his lordes, in such wyse, that his noble royame of Englond may prosper, and habounde in vertues, and that synne may be eschewid, justice kept, the royame defended, good men rewarded, malefactors punysshid, and the ydle peple to be put to laboure, that he, wyth the nobles of the royame, may regne gloriously in conqueringe his enheritaunce, that verray peas and charity may endure in both his royames, and that merchandise may have his course, in such wise that every man enchew synne, and encrece in vertuous occupacions, prayinge your good grace to resseyue this lityll and symple booke, made under the hope and shadowe of your protection, by hym that is your most humble servant, in gree and thanke. And I shall pray Almighty God for your long lyf and welfare, whiche he preserve, and send yow thacomplisshment of your hye, noble, joyous and virtuos desires, amen. Fynysshid the last day of Marche, the yer of our Lord God a thosaund foure hondred and LXXIIII." In the first edition of this book there were no cuts, but in the second there are; and in the second and third chapters it is said, "This game was invented by Philometer the philosopher, for the correction and instruction of a wicked king."

CHARACTERISTICS OF THE FIRST PRINTED BOOKS.

BEFORE we close this part of our work we shall give a short account of what is most peculiar in the first production of the Art; which, though a subject well known by the curious, it is

presumed may not be unacceptable to several persons, into whose hands this work may chance to fall.

With respect to their forms, they were generally either large or small Folios, or at least Quartos: the lesser sizes were not in use.

The leaves were without running title,* direction-word, number of pages, or divisions into paragraphs.

The character itself was a rude old Gothic mixed with Secretary, designed on purpose to imitate the hand-writing of those times; the words were printed so close to one another that it was difficult and tedious to be read, even by those who were used to Manuscripts, and to this method; and often lead the inattentive reader into mistakes.

Their orthography was various and often arbitrary, disregarding method.

They had very frequent abbreviations, which in time grew so numerous and difficult to be understood that there was a necessity of writing a book to teach the manner of reading them.†

Their periods were distinguished by no other points than the double or single one, that is, the colon and full-point: but they a little after introduced an oblique stroke, thus /, which answered the purpose of our comma.

They used no capital letters to begin a sentence, or for proper names of men or places.

They left blanks for the places of titles, initial letters, and other ornaments, in order to have them supplied by the illuminors, whose ingenious art, though in vogue before and at that time, did not long survive the masterly improvements made by the printers in this branch of their art. Those ornaments were exquisitely fine, and curiously variegated with the most beautiful colours, and even with gold and silver; the margins likewise were frequently

* Some of the early printed books of Caxton, have no title pages.

† A curious example of this is given by Mr. Nichols, Orig. p. 105 [*m*] "a singular specimen of which is faithfully exhibited by Chevillier:

Sic̃ hic ẽ fal s̃m q̃d ad simplr a ẽ ꝑducibile a Deo g̃ a ẽ & slr hic a ñ ẽ g̃ a ñ ẽ ꝑducibile a Dõ.

i. e. Sicut hic est fallacia secundum quid ad simpliciter. A est producibile a Deo: Ergo A est. Et similiter hic: A non est: Ergo A non est producibile a Deo." Contractions of a similar nature abounded in all the works of that age, and more particularly in books of law.

charged with variety of figures of saints, birds, beasts, monsters, flowers, &c. which had sometimes relation to the contents of the page, though often none at all: these embellishments were very costly; but for those that could not afford a great price, there were inferior ornaments, which could be done at a much easier rate.

The name of the printer, place of his residence, &c. were either wholly neglected, or put at the end of the book, not without some pious ejaculation or doxology.

The date was likewise omitted or involved in some crampt circumstantial period, or else printed either at full length, or by numerical letters, and sometimes partly one and partly the other; thus, one thousand CCCC and lxxiiii, &c., but all of them at the end of the book.

There were no variety of characters, no intermixture of roman and italic, they are of later invention, but their pages were continued in a Gothic letter of the same size throughout.

They printed but few copies at once, for 200 or 300 were then esteemed a large impression; though upon the encouragements received from the learned, they increased their numbers in proportion.

We shall here mention something concerning their book-binding, an account of which we find in Scaliger, who tells us, that his grandmother had a printed Psalter, the cover of which was two inches thick; in the inside was a kind of cupboard,* wherein was a small silver crucifix, and behind it the name of Berenica Codronia de la Scala. This book seems to have been printed with blocks of wood, but probably bound the same way as the rest.

We conclude this chapter† with an observation of M. Monoye concerning the phrase, *Libri editi*, which we hope the curious will be pleased with: he tells us that this phrase was used before the invention of printing, and signified only books published and dispersed abroad in some considerable number, in opposition to those that were writ fair to be set up in libraries, which were called *Libri scripti*. Whether this observation be ascertain as it is curious we shall leave to the judgment of ourreaders.

* I had a book in my hands a few days since, in the cover of which was a recess for a relic; and the relic!—a human toe!!—*H.*

† In Luckombe.

SECTION IV.

First Printer in England—Earliest Masters in London—Protecting Statutes, Patents, and Exclusive Privileges—Origin of the existing Patent of King's Printer—Copy of the Patent to Reeves, Eyre, and Strahan —Earliest Printers in OXFORD—CAMBRIDGE—*St. Albans—York —Beverly—Tavistock—Southwark—Canterbury, &c.—SCOTLAND —IRELAND—First Practice of the Art in the most important Cities and Towns on the Continent.*

BY WHOM FIRST PRACTISED IN LONDON.

(Reprinted from Luckombe.)*

AS we have shewn under a former head how early printing was introduced and practised at Westminster, we shall now proceed to the Metropolis, where it cannot be supposed to have been wholly neglected; however, be that as it will, it is certain, that if it was slow in receiving it, ample amends was made for it afterwards, so that in a little time there were several considerable Printing-houses erected in the most convenient parts of London, wherein it has flourished and been improving ever since; and some of whose eminent printers received great encouragement from the Crown, particularly by PATENTS, of which we shall give an

* The whole of this Section was copied by Luckombe from Ames's "Typographical Antiquities," but without the grace of an acknowledgment. The language has been slightly modernized by substituting "lived at," for "dwelt at," and such like; but the substance is the same throughout. The work was very well done by Luckombe; and, therefore, except what may be termed corrections, I shall not affect any interpolations. I have, nevertheless, closely compared Luckombe with Ames; and whatever of the latter the former may have omitted, which recent circumstances may have made interesting, I have inserted. I have also selected particular parts to form separate heads, in order to show the origin of Privileges and Patents granted to particular printers; and I have added occasional notes where I thought they might create additional interest, or make the points they apply to better understood.

account under the names of the printers to whom they were granted. The first London printers were, in 1480, viz.

John Lettou and William Machlinia, who are supposed, by their names, to be foreigners, but of what country is uncertain; they probably were encouraged to come over and settle here by Caxton, to promote the Art of Printing. They printed separately and in partnership, as may be seen by the productions of their press, which are chiefly law; yet it does not appear that they had any patent for so doing, nor did they continue printing longer than the year 1483. These two printers tell us, that they printed near All-hallows Church in London. Their letter is a very coarse Gothic one, and more rude than Caxton's. They printed "Lyttleton's Tenures," and an "Abridgment of the Statutes."

WINKEN, WYNKYN, or WYNANDUS, DE WORDE, was a foreigner, born in the dukedom of Lorrain, as appears by the patent-roll in the Chapel of the Rolls. Our first printer, CAXTON, when resident abroad, might probably have met with him there, and engaged him to come over to England as a servant or assistant, as John Faust at Mentz had his lad, or servant, Peter Schoeffer, whom they chose for their ingenuity and promising parts; and their after works shew they were not mistaken in their choice.

He continued in some capacity with Caxton till his master's death, 1491, and printed at his house in Westminster afterwards. He finished some volumes which had been begun by Caxton, viz. the "Canterbury Tales;" and Hilton's "Scale of Perfection." The last, Mr. Maittaire dates in the year 1494, and Mr. Bagford, in 1495, who gives it as the first impression done in Wynkyn de Worde's name. Whether he was married or no, or had relations that came over with him, does not appear by his will; yet we find in the church-wardens accounts for St. Margeret's Westminster, an entry made in 1498. "*Item, For the knell of Elizabeth de Worde vi pence. Item, For iii torches, with the grete belle for her, viiii d.*" Again, in the year 1500, "*Item, For the knelle of Iuliane de Worde, with the grete bell, vi pence.*" By living with Caxton he naturally fell into the company and acquaintance of the learned and noble of this kingdom, on account of this new art, as soon appeared by the first works he printed, and styled himself, "Printer to Margaret, &c., the King's grandame." In the 7th of Henry

VII, 1491, he printed the Acts of Parliament with the King's arms, &c., and dwelt at his master's house at least six years, as may be seen by several books mentioned as printed by him at Westminster, in Caxton's house, till the acts printed in the 11th and 12th of Henry VII, when he printed at the end, with the same cut, and a similar cipher to Caxton's; "also in Fleet-street, at the sygn of the Sonne, by Wynken de Worde."

Afterwards he probably kept both shops for some time, where, by himself and his servants, he performed all the parts of the business, and furnished others dwelling in London. Mr. Palmer, in his History of Printing, says, he printed several Latin, as well as English, volumes, but no Greek. He continued printing with great applause till 1533, if not beyond that time. He was a person of great accomplishments in learning, as well as strictness in morals; and though he was the immediate successor to Caxton, the improvements he made were very considerable; for by his genius, and great scope of fancy, he formed such a variety of sorts and sizes of letter, that for several years after few equalled, none excelled, him therein. for it may be observed, the most antient printers did every part of the business belonging to books by themselves, or under their direction, even to the binding and selling them. His skill in the art is much commended: and at his setting up for himself his first care was, to cut a new set of punches, which he sunk into matrices and cast several sorts of printing letters, which he afterwards used; if he was the manual operator in cutting and casting in his own foundery, it is an incredible improvement which he made in the art; or, if he had his types from abroad, notwithstanding it robs him of the glory of the letter, yet his excellent method of disposition, composition, and press-work, shews him to have excelled his master, and even to rival any of his contemporaries abroad. There is one circumstance that induces many to think that he was his own letter-founder; which is, that in some of his first printed books, the very letter he made use of is the same used by all the printers in London at this time;* and is imagined to be struck from his

* Mr. Palmer, the printer and author, says, the same were used by all the printers of his day, and believes they were struck from the punches of Wynkyn de Worde. I have no doubt but that they are *still* in existence: the old specimen-book of William Caxton, now before me (edit. 1785), confirms

punches. He is the first English printer who introduced the Roman letter in England, which he made use of to distinguish any thing remarkable. His letter is different from most other printers, and is cast so true, and stands so well in line, as not to be since excelled. Upon the whole, he was a very curious, laborious, and indefatigable printer. He was the first who began to print the Year-books; which were continued by Pinson.

Most of his books now remaining were printed at London, in Fleet-street, in St. Bride's parish, at the sign of the Sun.* We have observed no sign of his while at Westminster, unless he had the same cipher which his master, William Caxton, used for a sign, in memory of the year when he brought printing first into England. He was a Stationer by company, but we cannot find any charter granted them before that of Philip and Mary, in 1556, which will be inserted in our account of Cawood, who was master

this opinion; and old English, *real old English*, would have been still in use, but for the modern-cut, non-descript, sui generis, radical-reformed old-English, Black, which is forced upon printers of our days.

* It may be difficult at this time to determine the exact situation of his residence in Fleet-street, which is usually said to have been "over against the conduit." A Map of London of the date of Queen Elizabeth, which I have in my possession, shows the conduit to have been at the South end of Shoe-lane, in Fleet-street. It was founded by Sir William Eastfield, who was Mayor of London, about 1471; and was decorated by images, chimes, &c., which went by water, about 1478. Though rebuilt in 1582, this conduit, with all the rest, gave way to the laying on of water from the New River; and their remains were quite effaced by the great fire of London. Sorbiere describes them as little, mean-looking, square buildings, resembling small towers, having an archway or door in the centre where the water ran.—Bagford, in mentioning the establishment of Wynkyn de Worde, in Fleet-street, says, "over against the conduit, and there set up at the sign of the Golden Sun, which I do suppose is that which is now the Globe Tavern at the end of Shoe-lane; which had been a large timber-house, and let for his purpose for a printing-house."—Stow is not a whit more precise: and Pennant lodges him rather nearer to St. Bride's Church.—In one of his colophons he describes himself as "dwellynge in flete strete at the sygne of the sonne agaynst the condyth."

It has been already said, that Wynkyn de Worde died soon after 1534; and who was his immediate successor I have not been able to ascertain; but John Wayland, who first printed at the sign of the "Blue Garland," in Fleet-street, lived in 1541, at the sign of the Sun against the conduit. See the mention of him, p. 119, *post*.

of the company. Wynkyn de Worde was also of the brotherhood of our Lady's Assumption. In the year 1471, when Caxton printed the Receuyl of the Hystory of Troye, we may allow him to be about fifteen; if so, he was seventy-eight years old when he died.*

* He made his will, as may be seen in the Prerogative-office, dated the 5th of June, 1534, and died not long after. He writes himself "Citizen and Stationer of London." He commends his soul to God and the blessed St. Mary, and his body to be buried in the parochial church of St. Bride's in Fleet-street, before the high altar of St. Katherine. "Item, For tythes forgotten six shillings and eight pence. Item, To the fraternity of our Lady, of which I am a brother, ten shillings, to pray for my soul. Item, To my maid, three pounds in books. To Agnes Tidder, widow, forty shillings in books. Item, To Robert Darby, three pounds in printed books. To John Barbanson, sixty shillings in books, and ten marks. To Hector, my servant, five marks sterling in books. To Wislin, twenty shillings in printed books. To Nowel, the book-binder, in Shoe-lane, twenty shillings in books. To Simon, my servant, twenty shillings in printed books. To every of my apprentices, three pounds in printed books. To John Butler, late my servant, six pounds in printed books. To my servant, James Ganer, in books twenty marks. And forgive John Bedel, stationer, all the money he owes me, &c., for executing this my will, with James Ganer; and that they, with the consent of the wardens of the parish of St. Bride's, purchase at least twenty shillings a year in or near the city, to pray for my soule, and say mass. To Henry Pepwell, stationer, four pounds in printed books. To John Gouge forgive what he owes me, and four pounds. To Robert Copland, ten marks. And to Alard, book-binder, my servant, six pounds fifteen shillings and four pence."

Among the great variety of books published by him [I have seen the number stated at 408.—*H.*] we shall give an extract out of only one, viz. Dean Collet's Theology, printed in 1533. "The mayster shall reherse these articles to them that offer their chyldren, on this ways here followinge. If your chyld can rede and wryte Latin and Englisshe sufficiently, so that he be able to rede and wryte his own lessons, then he shall be admitted into the schole for a scholar. If your chyld after reasonable season proved to be here unapte, and unable to learning, than ye warned thereof, shall take him away, that he occupye not here rowme in vayn. If he be apt to learn, ye shall be content that he continue here till he have some compytant literature. If he be absent six days, in that mean season ye shew not cause resonable (resonable cause is al only sekness) then his rowme to be voyde, without he be admitted again, and pay iiii d. Also, after cause shewed, if he continue so absent tyll the week of admission in the next quarter, and then shew not the continuance of hys sekness, than hys rowme to be voyde, and he none of the schole, tyll

Richard Pinson, or Pynson, was brought up under Caxton, as well as Wynkyn de Worde; and being become a good proficient in the business, went and set up a press of his own at Temple-bar, as the inscription on his first works shew. The friendship which he had contracted with De Worde, whilst these two wrought under Caxton, was so far from being disturbed by any emulation or rivalship, that it continued to their death. He is said to have been born in Normandy, and appears to have been an early servant to our first printer, Caxton, whom he calls, in his edition of "Chaucer's Canterbury Tales" (without a date, and imagined to be his first printed book) his "worshipful master;" and tells the reader, that this book had been diligently overseen, and duly examined by his politic reason and oversight. He was in such esteem with the Lady Margaret, King Henry VIIth's mother, and other great personages, that he printed for them all his days, and obtained a patent from King Henry VII, to be his printer.* He had a correspondence with, and employed William Tailleur, a printer at Rouen, to print some pieces of law; the laws being, a little before that time, till the beginning of Henry VIIth's reign, made in the Norman French tongue. And probably the reason why he sent them over to be printed was, that they, understanding the language better, might be capable of printing it more correctly. However, he had such helps afterwards, that all statutes, &c., were printed here at home. He printed many books, which were also printed by his friend and fellow servant, Wynkyn de Worde, who survived him about six years. Many books were printed by him and his servants, and he caused many pretty devices to be stamped on their covers. He died before the year 1529, when Thomas Barthelet succeeded him as King's printer.

Julian Notary dwelt at several places, and as he printed some time at Westminster, in 1500, we place him next after Pinson.

he be admitted agayne, and pay iiii d. for wryting of his name. Also, yf he fal thryse into absence, he shall be admitted no more. Your chyld shall on Childermas day waite upon the byshap at Pouwls, and offer there. Also, ye shall find him wax in wynter. Also, ye shall fynde him convenient bokes to hys lerning. If the offerer be content with these articles, then let his chyld be admitted."

* The particulars relative to these appointments, will be concentrated in a special head of "Privileged or Patent Printers."

He printed in France before he practised in England. In 1503 he resided in St. Clement's parish, without Temple-bar. In 1515 he lived in St. Paul's Church-yard, near the west door, by my Lord of London's palace, at the sign of the Three Kings.

Guillam or William Faques, was the king's printer, and probably joined in the same patent with Pinson. They both printed the act of parliament made in the 19th of King Henry VII, 1503, and styled themselves in each, "Printers to the King." How long he had printed before, or continued after, does not appear, but his books show him to have been an excellent workman, and lived within St. Helen's.

Henry Pepwell is supposed to be only a bookseller, in St. Paul's Church-yard, and sold foreign books for merchants and others; for there were many books printed abroad about this time, and a good while after, that were to be had at the sign of the Trinity, in St. Paul's Church-yard. He was a citizen and stationer of London, had a wife and children, and for a servant Michael Lobley, a printer, of whom we shall take notice in another place. He seems to have been attached rigidly to the Roman Catholic religion all his days, and a useful man for John Stokeslaye, Bishop of London, who succeeded Cuthbert Tunstall. Pepwell's first book that he published was in 1502.*

Towards the end of Henry the VIIth's reign, besides the books that were printed at home, there were several printed for us abroad, by the encouragement of English merchants, and others, as they found their account in it. Among others was Mr. Bretton, a merchant of London, who encouraged the printing books abroad, for our use, but his own profit and advantage. He bore the character of a faithful and honest man, as appears by the books printed at his expense. In 1506 there were sold, at the sign of the Trinity, in St. Paul's Church-yard, several of the prayer-books in English.

John Skot, or Scott (for he printed his name both ways), is supposed to have learned the art of Wynkyn de Worde, or Pinson,

* He made his will Sept. 11, 1539, in which he gives his soul to the blessed lady, Mary, mother of Christ, and his body to be buried in the parish church of St. Faith's (under St. Paul's), nigh the high altar; and to Bermondsey, where he was born, a printed mass-book, the price of five shillings, to pray for his soul. He made his wife, Ursula, and his children, executors.

because his first works seem to be printed on the same letter, and greatly to resemble the press-work of de Worde and Pinson, and was published in 1521, when he lived without Newgate, in St. Pulker's parish. He removed into St. Paul's Church-yard in 1534. He also lived in George Alley without Bishopsgate, in St. Botolph's parish.

Thomas Godfray, 1510, dwelt at Temple-bar, printed a great many books without date, and printed Chaucer's Works in 1532.

John Rastell, a gentleman, brought up in learning, and probably to the law, had his education in the University of Oxford, was born in London. He took up the employ of printing in 1517, which at that time was esteemed a profession fit for a scholar or ingenious man. Being remarked for his piety and learning, he became intimate with Sir Thomas More, whose sister Elizabeth he married; he was zealous for the Catholic cause, and a great hater of the proceedings of King Henry VIII.*

Robert and William Copland; the first was servant to Wynkyn de Worde, as appears by his prologue to the Knight of the Swan, and by the will of Wynkyn de Worde, wherein he was a legatee. Whether he was one of Caxton's servants is uncertain; but be that as it will, he was one of the earliest printers, besides stationer and bookseller, as well as translator and author. This may be observed from several of his books; and that he chiefly dwelt in Fleet-street, at the sign of the Rose Garland, to 1541; in which year, under Robert Wyer, he is mentioned. He brought up his son William in the same art, who followed the business in the same house and at the same sign, and other places. He became one of the Stationers' Company in 1556, and continued printing

* As for the book of law-terms, said by Bale to be written by the same author, it is erroneous, for it was written by his son William, in the year 1565.—This John Rastell died at London, in 1536, leaving behind him issue William Rastell before-mentioned, and John Rastell, a justice of peace, who had a daughter named Elizabeth, the wife of Robert Laugher, LL.D. chancellor of the diocess of Exeter.

There were, it is likely, two families of the Rastells about this time, which makes it difficult, in many places, to distinguish one from the other. It is plain that William Rastell, of St. Bride's parish in London, in the year 1530, and the life-time of John, was a very noted printer of law books, as will be shown in its proper place; and this family existed a good while before the Rastells mentioned by Mr. Wood.

for himself and others till 1561. They are mentioned together, because they both used the same mark and letter. The first production of Robert's was in 1515.*

John Butler, or Boulter, who, we are informed, was a judge in the Court of Common Pleas, had a printing-house at the sign of St. John the Evangelist, in Fleet-street, in 1520, where he carried on but little business.

Robert Wyer, an early printer, who printed many books without dates. He lived at the sign of St. John the Evangelist, in St. Martin's parish, in the bishop of Norwich's Rents, near Charing-cross, in 1524.

Robert Redman printed law as early as 1525, while Wynkyn de Worde, Pinson, and Rastell were living, as well as some others; so that one would be apt to conclude their patents were not always exclusive of others. He dwelt, after Pinson's death, in his house, and continued the sign of the George.†

Richard Banks printed, and had others that printed for him, about twenty years. He dwelt and sold books at several places, and had a patent for printing the Epistles and Gospels, granted in 1540.

Laurence Andrew, a native of Calais. He was a translator of divers authors before he learned the art of printing, which probably might be from John of Doesborowe and Peter Treurs. After-

* He printed the "Introduction of Knowledge, by Andrew Borde, physician," which treateth of the natural disposition of an Englishman, and of the money then used. In it is a cut of an Englishman, somewhat resembling King Henry VIII. but naked, holding a piece of cloth over his arm and a pair of shears in his other hand, with the following lines, expressing the fickle disposition of the English:

> I am an Englishman, and naked I stand here,
> Musing in my mynde, what rayment I shal were;
> For now I were thys, and now I wyll were that,
> Now I wyl were, I cannot tell what,——&c.

† His will, which is in the Prerogative Office, is as follows: "Robert Redman, stationer and freeman of London, in the parish of St. Dunstan's in the West, made his will the 21st day of October, 1540. His estates he left to his family. Forty pence to be given to the poor, at the day of his death. Elizabeth, his wife, to be sole executrix; and William Peyghan, and his son-in-law, Henry Smith, to be overseers of this his will; and they to have for their labour at the discretion of his executrix.

wards he practised it in Fleet-street, London, at the sign of the Golden-cross, by Fleet-bridge.

John Reynes, bookseller and bookbinder, dwelt in St. Paul's Church-yard, at the sign of the St. George, in 1527, if not before. Some books are said to be printed by him, others for him; but there are many more that have his marks and pretty devices on their covers; as the arms and supporters of Jesus Christ, with these words, *Redemptoris Mundi Arma.*

Thomas Berthelet, Esq. the King's Printer, had a patent granted him at the decease of Pinson.*

As several books, and one in 1541, are said to be printed in the house, late Thomas Berthelet's, he probably left off printing, or at least employed others to print for him, some years before his death.†

In the year 1546 he printed a proclamation to abolish such

* The first book with a date, printed by him anno 1493, was, "A Compendious Treatise Dialogue of Dives and Pauper," wherein is the following remarkable passage of fair Rosamond: "We rede that in Englonde was a kinge that had a concubyne, whose name was Rose, and for her graete bowte he cleped hir *Rose-a-munde*, that is to saye, Rose of the Worlde; for him thought that she passed al women in bewte. It befel that she died, and was buried whyle the kinge was absent, and whanne he came ayen, for grete love that he had to hyr, he would se the bodie in the graue, and whanne the graue was opened there sat an orrible tode upon hyr breste, bytween hyr teetys, and a foule adder bigirt hyr body aboute the midle, and she stank so that the kyng, ne non other, might stonde to se the orrible sight. Thanne the kynge dyde shette agen the graue, and did write these two veersis upon the graue,

"Hic jacet in tumba Rosa-mundi non Rosamunda;
Non redolet, sed olet, quæ redolere solet."

† His arms are described in a book marked 2 H. 5 in the College of Arms, London, thus:—

"The armes and creste of Thomas Berthelet, of London, esquyer, gentillman; he bereth asure on a cheveron flore contre flore argent betwene three doves of the same, thre trefiles vert. per chrest. upon his helm. out of a crounall silver two serpents endorsed asure ventred gold open mouthed, langued and eyed geules, there tails comyng up in salure under thire throtes, the endes of their tailes entering into their eres, langued and armed geules manteled geules, doubled silver, as more plainly apperith depicted in this margent; graunted and geven by me, Thomas Hawley, alias Clarenceulx, kyng of armes, the first day of September in the third yere of the reygne of our soveragne lorde kynge Edward the VI," &c.

books as contain pernicious errors and heresies, wherein it is expressed that "None shall receive, take, have, or keep in his or their possession, the text of the New Testament of Tindal's or Coverdal's translation in English, nor any other than is permitted by the act of parliament."

Richard Fawkes, sometimes Fakes, is supposed to be a foreigner, and printer to the monastery Syon, and that he printed an Indulgence in 1520.

John Haukyns, whose place of residence and sign are not known, printed, in 1533, Merlin's Prophecies.

William Rastell, son of John Rastell, of London, printer, by Elizabeth his wife, sister to Sir Thomas More, knight, was born in the city of London, and educated in classical learning. In 1525, being seventeen years old, he was sent to Oxford to complete his education, after which he became a student in Lincoln's-inn, and was, in 1554, made a sergeant at law, and a little before the death of Queen Mary, was appointed one of the justices of the Common Pleas. He was a zealous Roman Catholic, and the chief production of his press was law and religious controversy. On the accession of Queen Elizabeth he retired to Louvain, where he died, in 1565.

John Toye printed at London, in Paul's Church-yard, at the sign of St. Nicholas, in 1531.

John Byddle, otherwise called Salisbury, but for what reason it is not said. He was a stationer and printer, and appears to have sold books in the year 1533, if not before. It is probable that he was apprentice to Wynkyn de Worde. He first kept shop at the sign of our Lady of Piety, but afterwards moved to Wynkyn de Worde's house, and was one of his executors, as appears by Worde's will already mentioned.

Thomas Gibson, besides being a printer, was a studious man, and compiled the first Concordance to the English New Testament, 1534. He printed from 1534 to 1539.

John Gowghe, Gowgh, Gouge, or Gough, printer, stationer, and author, dwelt at the sign of the Mermaid, in Cheapside, near the entrance to St. Paul's; and afterwards removed to Lombard-street.

William Marshall seems to have been a gentleman, or merchant, who had interest at court, and procured a license for printing the

first Reformed or Protestant Primer from the Cantabrigians and Oxonians casting off the Pope's supremacy the year before; which met with the approbation and protection of Anna Bolleyne, 1535.

Roger Latham, as appears by a Latin grammar among the late earl of Oxford's books. He dwelt in the Old Bailey in 1535.

Richard Grafton, Esq. seems to have been born at London, the latter end of King Henry VIIth's time; however, he appeared as a printer in the reigns of King Henry VIII, King Edward VI, Queen Mary, and Queen Elizabeth; through all which reigns we shall endeavour to trace him as far as the intelligence we can procure will permit. It is uncertain whether he was a stationer, but it is natural to suppose he was brought up to the profession of a printer, since he exercised the art in the early part of his life, and continued it for so long a duration. He enjoyed a liberal education, and by his writings must have understood the languages. His original letters* to Archbishop Cranmer and Lord Cromwell, show that he was encouraged by, and even admitted to the conversation of the nobility and great men of his time.

In 1537, he professed and practised printing in London. Previous to his living in London he dwelt at Antwerp, where he printed Tindal's New Testaments and afterwards his Bible, revised and corrected by Miles Coverdale. Some impressions of the former having been dispersed in England, they were bought up by Cuthbert Tonstal, then Bishop of London, and burnt at St. Paul's Cross.

Grafton and Whitchurch's names are sometimes printed separately in the same books; particularly those which they printed with the royal privilege, "ad imprimendum solum;" as the Bible, New Testaments, and Primers. In printing the stated number, when so many as were to bear Grafton's name were completed, his name was taken out of the form, and Whitchurch's inserted in its place.

He lived in a part of the dissolved house of the Grey Friars, which was afterwards granted by King Edward VI, for an hospital for the maintenance and education of orphans, called Christ's Hospital. It does not appear that Grafton dwelt in any other

* Some circumstances in his letters lead to the supposition that he was originally a grocer.

house. He took for his rebus, in allusion to his name, a tun, with a grafted tree growing through it, with this motto—*Suscipite insitum verbum.* IACO. I.

There was a Richard Grafton, a grocer, member of parliament for the city of London, 1553 and 1554, and again 1556 and 1557, who might probably be our printer. Feb. 5, 1557, Grafton was joined with others to examine a matter against Walter Rawley, a burgess, complained on out of the Admiralty Court, by Dr. Cook's letter. March 9, 1562, the bill for paving of Kent-street, in the borough of Southwark, was brought in by Grafton, who that year served for the city of Coventry in Warwickshire, as appears by the Journals of the House of Commons. In 1563 he brought in a bill to assize the weight of barrels, &c. Oct. 14, 1566, see his complaint against Phylpott for extortion.

On the accession of Queen Elizabeth to the throne, Grafton published "The Passage of our most drad Soveraigne Lady Queen Elyzabeth through the City of London to Westminster, the Daye before her Coronation, anno 1558." Grafton employed others to print for him at the latter part of his life.

Edward Whitchurch, Esq., King's Printer, was joined in the same patent with Grafton, and originally brought up a merchant, and lived in St. Martin's, at the Well with two Buckets; and, as Fox in his Acts and Monuments says, he was brought into trouble with Grafton, in the year 1541, concerning the six articles, being suspected not to have been confessed. They continued in friendship and partnership together for many years, though Whitchurch dwelt separate, and kept shop at several places in London. In the year 1554 there was a general pardon proclaimed within the Abbey, at the time of her (Queen Mary's) coronation, out of which proclamation all the prisoners of the Tower and of the Fleet were excepted, and sixty-two more; whereof Mr. Whitchurch and Mr. Grafton were two. He afterwards married the widow of Archbishop Cranmer, and continued printing till the year 1554.

Thomas Petit, Petyt, or Petyte, who it is supposed was related to the famous John Petit, a curious printer at Paris. He dwelt in St. Paul's Church-yard, at the sign of the Maiden's-head, and printed several law books; yet he was not the king's printer, nor

had an exclusive patent for it, other printers doing the same about this time, viz. 1538.

John Wayland, citizen and scrivener, of London, lived at the sign of the Blue Garland, in Fleet-street; and in the year 1541, at the sign of the Sun, against the conduit.* He calls himself Allowed Printer, from his obtaining a patent from Queen Mary, for printing prayer-books.†

Andrew Hester was rather a bookseller than printer, and lived at the sign of the White Horse, in St. Paul's Church-yard, from the year 1539 to 1551.

Michell Lobley, printer, stationer, and bookseller, was servant to Henry Pepwell, and lived at the sign of St. Mychell, in St. Paul's Church-yard. He had, in Henry VIIIth's reign been guilty of heretical pravity, and was forced to abjure, and bare faggots for penance.‡ He was upper warden of the Stationers' Company the first year of the reign of Queen Elizabeth, when

* This was originally the house of Wynkyn de Worde, to which it is probable Wayland removed to suit his increase of business by the death of his neighbour.—See *ante*, p. 109.

† In 1555 he printed "The account of the arrival and landyng, and moste noble marryage of the moste illustre prynce Philippe, prynce of Spaine, to the most excellent princes Marye quene of England, solemnisated in the citie of Winchester; and how he was recyeued and installed at Windsore, and of his triumphyng entries in the noble citie of London. Whereunto is added, a brefe overture, or openyng of the legation of the most reverend father in God, lord cardinall Poole, from the see apostolyke of Rome, with the substaunce of his oracyon to the kyng and quenes magestie, for the reconcilement of the realme of Englande to the unitie of the catholyke churche; with the very copye also of the supplycation, exhibited to their highnesses by the three estates assembled in the parliament; wherein they, representing the whole body of the realme and dominions of the same, have submitted themselves to the pope's holynesse." In describing the prince, he says that "Of visage he is well favoured, with a broad forehead and grey iyes, streight nosed, and manly countenance. From the forehead to the point of hys chynne, his face groweth small, his pace is princely, and gate so streight and upright, as he loseth no inche of his highte, with a yeallowe berde; and thus to conclude, he is so well-proportioned of bodi, arme, legge, and every other limme to the same, as nature cannot worke a more parfite paterne; and, as I have learned, of the age of xxviii years, whose majesty I judge to be of a stoute stomake, pregnant witted, and of most jentel nature.]

‡ Fox's Acts and Monuments, p. 419.

she renewed their charter, which we shall insert hereafter. He published from 1539 to 1560.

John Maler, Mayler, Maylert, or Maylart, for his name is spelt all these ways, a grocer by company, was a scholar, and a zealous man for the Reformation, and lived at the White Bear, in Botolph Lane, near Billingsgate, and was in trouble on account of the six articles, in the year 1541, "Being a sacramentary, a rayler against the masse; for calling the sacrament of the aulter, the baken God; and for saying that the masse was called beyond the sea, misse, for that all is amisse in it."

Anthony Malert, or Marler, supposed to be related to the preceding John Maylert, was a haberdasher by company, as appears by a patent granted him for printing a folio Bible. In the King's Library, in the Museum, at the beginning of a very fine illuminated folio Bible, printed on vellum, are the following words wrote, "This booke is presented unto your most excellent hyghness, by your loving, faithfull, and obedient subject, and dayly orator, Anthony Marler, of London, haberdasher." Printed in April, 1540. His desire to oblige by this present, might probably be a means of his having the grant.

William Middleton seems to have succeeded Redman in his house and business of printing, and kept the sign of the George, next to St. Dunstan's Church in Fleet-street, 1541.

John Hertforde, Herforde, or Hereford, printed at St. Alban's before he resided in London. The Reformation taking place, and not finding business among the monks, he came and lived in Aldersgate-street, where he resided from the year 1544 to 1548.

Thomas Raynalde lived in St. Andrew's parish, in the wardrobe, and kept shop in St. Paul's Church-yard. He is supposed to have been author of "The Woman's Book;" or, "The Birth of Mankind." This is the first English book embellished with rolling-press cuts. It was printed by him in 1540, and he continued in business till 1555.

Robert Toy; he lived at the sign of the Bell in St. Paul's Church-yard; he was a member of the old Stationers' Company, and continued in business from 1541 to 1551.

Richard Lant, citizen and stationer, lived in the Old Bailey, in St. Sepulchre's parish, and also in Aldersgate-street. He printed

from 1542 to 1556, when he became one of the original members of the Stationers' Company.

William Bonham, stationer, lived at the Red Lion and King's Arms, in St. Paul's Church-yard.

Reynold Wolfe, Esq. King's Printer, was a foreigner, born either in Germany, or Zurich in Switzerland. There were two printers of this name; one Nicholas Wolfe, a German, in the year 1502; and Thomas Wolfe, at Basil, 1527. Probably ours was related to one of them and brought up early to learning, and that of printing. It is plain he was a man of eminence by being in great favour with King Henry VIII, Lord Cromwell, Archbishop Cranmer, &c. Stowe observes of him, that in the year 1549 the bones of the dead, in the charnel house of St. Paul's amounting to more than 1,000 cart loads, were carried to Finsbury-field, and the expense borne by Wolfe.

He set up his printing house in St. Paul's Church-yard, at the sign of the Brazen Serpent, which was a device used by foreign printers. The house he built from the ground, out of the old chapel which he purchased of Henry VIII, at the dissolution of monasteries, where, on the same ground, he had several other tenements, and afterwards purchased several leases of the dean and chapter of St. Paul's. He followed his business of printing with great reputation for many years, and printed for Archbishop Cranmer most of his pieces.

He was the first who had a patent (A.D. 1543) for being printer to the king in Latin, Greek, and Hebrew,* by which he was authorized to be his majesty's bookseller and stationer, and to print all sorts of books in the said languages, as also Greek and Latin grammars, although interspersed with English; and likewise charts, maps, and such other things which might be at any time useful and necessary. And he was permitted to exercise this office either himself, or by sufficient deputies; and to enjoy an annuity of twenty-six shillings and eight-pence, besides all other profits and advantages belonging to his office, during life. And all other booksellers and printers were forbid to sell or print any books printed by him, at his own charge, or in his

* Siberch, who printed at Cambridge about 20 years before, calls himself "primum utriusque linguæ in Angl. impressorem," and so he might be; but he printed a few Greek works only interspersed amongst his Latin.—*Mores*, p. 7.

name, on pain of forfeiting their books, &c. He was also a great collector of English history, afterwards digested and printed by Hollingshed. He was a member of the Company before the incorporation, and was afterwards four times master.

It appears that he desisted from printing during the reign of Queen Mary, and spent that time in collecting materials for his chronicles. When Queen Elizabeth renewed and confirmed the Stationers' Charter in the first year of her reign, Reynold Wolfe was then master, as will appear by the charter inserted hereafter.

After he had continued his business above thirty years, he made his will, which is but short, in the year 1574, Jan. 9, and left his wife Joan sole executrix. His trade seems to have been continued some time after his death (1574 till 1580) by his wife.

William Follington, lived at Holywell by Shoreditch, where he printed in 1544.

John Day is supposed to be a Suffolk man, of a good family from their lying buried at Bradley-Parva in that county. He was of the Company of Stationers, but from whom he learned the art of printing does not appear.

He lived first in Holborn and afterwards at Aldersgate, and kept at the same time several shops in different parts of the town. He appears to have brought up a large family in a genteel manner, was a lover of learning, and gave handsome presents of books to promote it. Among the Harleian MSS. may be seen that he gave several benefactions to King's College in Cambridge in 1571. He was the first in England who printed in the Saxon letter, and brought that of the Greek to a great perfection, as well as the Italic and other characters, of which he had great variety. He used a great variety of mathematical schemes, maps, and other useful devices, to embellish his works. He began printing in 1544, and continued to the year 1583, but ceased during the reign of Queen Mary, which time he employed in making improvements in the art of printing.

The 7th of Edward VI, on March 25, 1553, he obtained a license for the sole printing a catechism in English, with the brief of an A B C thereunto annexed; and also for the printing and reprinting of "all works and books devised and completed by the reverend Father-in-God, John Poynes, Bishop of Wenton, or by Thomas Beacon, professor of divinity; so that no such

books, or any part of them, were any ways repugnant to the Holy Scriptures, or proceedings in religion, or the laws of the realm," for so the license ran.

In 1559, the 1st of Elizabeth, he obtained a license for the printing Cunyngham's Cosmographical Glass.

To Mr. Day we are indebted for the first publication of a work which maintains its interest to the present day, Fox's Book of Martyrs; or, as it was more generally called, from the first words of the title, "Acts and Monuments." This was published "*Cum privileg. reg. majest.*" 1562, and is alluded to in the 5th and 6th lines of the verses upon his monumental tablet. Of this work he himself printed several editions.

On the 26th of August, 1577, the 19th of Elizabeth, a license was granted to him and his son Richard, to print the Psalms of David in metre, &c.

On the 8th of January, 1583, he with others yielded up to the Stationers' Company, for the relief of the poor of the company, his copy-right to a parcel of books; a list of which books, among others, will be inserted hereafter.*

Richard Day, M. A. son of the last-mentioned John, was elected from Eton in the year 1571; became M. A. and fellow of

* Mr. Day died July 23, 1584, having followed the business of a printer for about forty years. He was buried in the parish church of Bradley-Parva, in the county of Suffolk; where, against the north wall of the chancel, is a stone table fixed to his memory, on which is inlaid in brass the effigies of a man and woman kneeling against a table, before which are two children in swaddling clothes, and behind the man six sons, and behind the woman five daughters, all kneeling. On the top of the stone are three escutcheons on brass plates, under which is cut, in capital letters, MIHI VITA CHRISTUS. Under the two effigies of Day and his wife are the following lines cut in the old English letter:—

Here lyes the Daye, that darkness could not blind,
  When popish fogges had overcaste the sunne,
This Daye the cruell nighte did leave behind,
  To view and shew what blodi acts were donne.
  He set a Fox to wright how martyrs runne
By death to lyfe. Fox ventured paynes and health,
To give them light; Daye spent in print his wealth.
  But God with gayne returned his wealth agayne,
And gave to him, as he gave to the poore.
  Two wyves he had, pertakers of his payne,

King's College, Cambridge; served the cure of Highgate in the room of John Fox; wrote commendatory verses on Fox's Book of Martyrs, a work he was concerned in; the Preface and Conclusion to the Testaments of the Twelve Patriarchs (of which he was esteemed the translator) and many other works. He was joined in a patent with his father, as was before observed, Aug. 26, 1577, to print the Psalms, &c. He kept a shop at the west end of St. Paul's Church-yard, at the sign of the Tree, and used this motto, *Sicvt lilivm inter spinas.*

William Seres was concerned with John Day, his partner, in several pieces. It is observed that Day is always mentioned the first. They were both of the Stationers' Company in 1566. Seres kept his shop in Peter College,* a place so called, situate on the west side of Paul's Church, at the sign of the Hedge-hog, which being the badge of Sir Henry Sidney, Mr. Bagford supposes him to have been his servant; yet we do not find that he was servant to any man, more than willingly to oblige all his employers.—He continued printing from 1544 to 1576.

Henry Smyth lived at the sign of the Holy Trinity, without Temple-bar, in St. Clement's parish, anno 1540.

Nicholas Hill, in 1546 lived in St. John-street, near Clerkenwell.

Richard Jugge, was bred a scholar, and elected from Eton to King's College, in 1531. About the time of the Reformation he acquired the art of printing, which he practised in King Edward VIth's time, and kept shop at the north door of St. Paul's Church, but dwelt at the sign of the Bible in Newgate-market, near Christ-church. He and John Cawood were made printers to Queen Elizabeth, by patent dated the 24th of March, 1560, with the usual allowance of 6*l.* 13*s.* 4*d.* to print all statutes, &c. He

Each wyfe twelve babes, and each of them one more;
Als was the last encreaser of his store,
Who mourning long for being left alone,
Set up this tombe, herself turn'd to a stone.
Obiit 23 July, 1584.

His motto, with respect to the Night of Ignorance and Superstition newly dispersed, was "Arise! for it is Day!"

* The site of this college was afterwards purchased by the Stationers' Company, for the erection of their second hall.

was very curious in his editions of the Old and New Testaments, bestowing not only a good letter, but many elegant initial letters, and fine wooden cuts. He continued in business about thirty years, and was succeeded in it by his wife Joan.

John Waley, or Wally, lived in Foster-lane, from 1547 to 1585. In 1557 he rented one of the Companys' rooms over the Hall, for 13*s.* 4*d.* and in 1561, for 20*s.* In 1558 he was fined 2*s.* 8*d.* for keeping open shops and selling books on a festival day; and in 1564 for the same crime on St. Luke's Day, with eighteen others, 16*s.* 8*d.* He was master in 1564.

William Powel lived in St. Dunstan's parish in Fleet-street, next to the church, at the sign of the George, in the old shop that was late William Middleton's. He continued in business from 1547 to 1567.

Hugh Singleton is supposed to have been very soon in the printing business, yet the first book of his production, with a date, was in the year 1548, he continued in business till 1588.

In the year 1581, the 23rd of Elizabeth, he printed a seditious book under the following title, "A Gaping Gulph to swallow up England by a French Marriage, &c." It was wrote by John Stubbes, of Lincoln's-inn, and published by William Page; all three were apprehended, and, by a law of Philip and Mary against the authors of seditious writings, were sentenced to lose their right hands, which was put in force against the author and publisher, but Singleton, by the interest of his friends, obtained a remittance of the sentence. He lived at the Golden Tun, in Creed-lane, near Ludgate, and used these words for his motto—"God is my Helper."

Richard Kele lived at a long shop in the Poultry, under St. Mildred's Church, in 1548;* and in Lombard-street, at the sign of the Eagle, in 1582.

Anthony Scoloker was brought up a scholar, and in 1548 resided in London in the Savoy Rents, near Temple-bar, after which he removed to Ipswich.

Humphrey Powel in 1548 lived near Holborn-conduit; from thence, in 1551, he went to Ireland, where he was the first person who there introduced printing.

* He was succeeded in this situation by John Alde.—*Vide post*, 130.

Robert Stoughton in 1548 lived at the sign of the Bishop's Mitre, within Ludgate, and continued till 1551.

Gaulter Lynne lived on Sommer's Quay, near Billingsgate, was a scholar and an author, as well as a printer of several books, from the year 1548 to 1550.

William Hill, or Hyll, lived at the sign of the Hill, in St. Paul's Church-yard, at the west door of the church, in 1548.

Robert Crowley, Croleus, or Crole, was born in Gloucestershire, became a student in the University of Oxford in 1534, and was soon after made Demy of Magdalen College. In 1542, being bachelor of arts, was made probationer fellow of the said house, by the name of Robert Crole. When King Edward VI began to reign he lived in Ely Rents, Holborn, London, where he printed and sold books, and at the same time preached in the city; but upon the accession of Queen Mary, he, among several English Protestants, went to Franckfort in Germany. After Mary's decease he returned, and had several benefices bestowed on him, among which was St. Giles's, Cripplegate, London, of which church he wrote himself "Vicar" in 1566. He died in 1588. He was the first printer of a work which has been brought into much notice by the modern bibliomania, "The Vision of Peirce Plowman," 1550.

Roger Car practised the art in 1548.

William Tilly lived in St. Anne and Agnes parish, in Aldersgate-street, in 1549.

John Wyer lived in Fleet-street, a little above the conduit, in 1550.

Richard Charlton practised the art in 1550.

John Kinge, printer and stationer, lived in Creed-lane, and had a shop in St. Paul's Church-yard, at the sign of the Swan, in 1550.

Thomas Gaultier practised the art in 1550.

John Tisdale, or John Tysdall, lived in Knight-rider-street, and had a shop in Lombard-street, in All-Hallow's Church-yard, near Grace-church, in 1550.

Stephen Mierdman practised the art in 1550.

John Case lived in St. Peter's-college Rents in 1551.

Abraham Vele, in 1551, lived at the sign of the Lamb in St. Paul's Church-yard, where he resided till 1586.

John Turke, in 1553, lived in St. Paul's Church-yard, at the sign of the Cock.

John Wyghte, or John Wight, had a shop at the sign of the Rose, in St. Paul's Church-yard, at the great north door. He was rather esteemed a bookseller than a printer, yet practised both in 1551.

John Cawood, Esq. was of an antient family in the county of York, as appears from a book at the Heralds'-office, William Grafton, VI. A, B, C, London. Wherein are the following words: "Cawood, Typographus regius reginæ Mariæ; his armes are, sable and argent parte per cheveron, embatteled between three harts heads cabosed, counterchanged within a border per fesse, counter-changed as before, with verdoy de trefyles sleped, numbered 10. These Cawoods were once lords of the manor of Cawood, near the city of York, although the castle hath aunciently been the archbishop's see. And it appears among the inquisitiones of the brethren in the time of King John throughout England (that is to say, in the 12th and 13th year of his reign, in the county of York, concerning knights service, and others held by him in chief, or capite, in the treasury rolls for the aforesaid liberty, by the hands of the shireef of that time:) that John Cawood held by grand sergentie (scilt. per fore staritem inter Darwent et Owse) one plowed land in Cawood. Which John, father of Peter, and Robert, clerk of the pipe, who had John, who had Margaret, &c." Thus it seems he was of that family in Yorkshire. When, or by whom, he was instructed in the art of printing does not appear; but he exercised that art three or four years before a patent was granted him by Queen Mary, when Richard Grafton was set aside, and had a narrow escape for his life. The chief import of the patent, which you may see at length in Rymer, vol. xv. p. 125, is abstracted in a subsequent page.

He and Henry Coke were appointed the first wardens of the Stationers' Company (Thomas Dockwray being master) in the charter granted by Philip and Mary. He became partner with Richard Jugge, in Queen Elizabeth's time, and printed books joyntly and separately. He was buried in St. Faith's, under St. Paul's, London, and his epitaph, preserved by Dugdale, is thus: "John Cawood, citizen and stationer of London, printer to the most renowned Queen's Majesty, Elizabeth, married three wives;

and had issue by Joane, the first wife only, as followeth:—three sones, four daughters. John, his eldest son, being bachelour-in-law, and fellow in New College in Oxenford, died 1570; Mary married to George Bischoppe, stationer; Isabel married to Thomas Woodcock, stationer; Gabrael, his second son, bestowed this dutiful remembrance of his deare parents, 1591, then churchwarden; Susanna, married to Robert Bullok; Barbara married to Mark Norton; Edmund, third son, died 1570." He died April 1, 1572, aged 58.

William Riddel probably was servant to John Day; he printed in 1552.

Rowland Hall, or Rowlande Haule, and sometimes Hawle, lived first in Golden-lane, at the sign of the Arrows. At the death of Edward VI, with several refugees during the reign of Queen Mary, he went and resided at Geneva, from whence we have several editions of the English Bible, and one of his impression in the year 1560. After his return to England he put up the Half Eagle and Key (the arms of Geneva) for a sign, at his old house in Golden-lane, near Cripplegate, and the same sign in Gutter-lane.*

Richard Tottel had his name spelt very different, was a very considerable printer of law, and one of the Stationers' Company. He dwelt in Fleet-street, within Temple-bar, at the sign of the Hand and Star.

He was twice master of the Stationers' Company, viz. in 1578 and 1584; and the 8th of January, 1583, he yielded up to the Stationers' Company, seven copies of books for the relief of the poor of their company.

Roger Madeley lived in 1553, at the sign of the Star, in St. Paul's Church-yard.

Robert Caley, or Caly, lived in Christ's Hospital, and is supposed to have succeeded Richard Grafton in his house and business. He continued in business from 1553 to 1558.

* From the following rhymes in a book printed by him, 1563, "The most Ancient and Learned Play, called the Philosopher's Game;" it appears he had also a shop in Cheapside, under Bow Church:—

All things belonging to this game
for reason you may bye
At the booke shop vnder Bochurch,
in Chepesyde redilye.

Henry Sutton, in 1553, lived at the sign of the Black Boy, in Pater-noster-row, and other places; and had a shop in St. Paul's Church-yard.

John Kingston; he put a Y for an I, and an E at the end of his name, or sometimes wrote Jhon Kyngstone, according to the usage of those times, when they were negligent in spelling. In 1553 he had a shop at the west door of St. Paul's.

Thomas Marshe, printer and citizen of London, was one of the Stationers' Company when their charter was granted the 3rd and 4th of Philip and Mary. He lived at the sign of the Prince's Arms, near St. Dunstan's Church, in Fleet-street. In Stow's Survey he is said to have had a patent granted him to print Latin school-books, of which the Stationers complained to the lord treasurer. He continued in business from 1555 to 1587.

Thomas Geminie, in 1556, lived in Black Friars.

Anthony Kytson, in 1555, kept a shop at the sign of the Sun, in St. Paul's Church-yard.

Thomas Powel, printer and stationer, in 1556, lived in Fleet-street.

Owen Rogers, or Ap. Rogers, stationer, in 1556, lived at the Spread Eagle, near St. Bartholomew's Gate, in Smithfield.

William Norton, a printer of great note, lived in St. Paul's Church-yard. On a tomb mentioned by Dugdale, is this inscription concerning his family. "William Norton, citizen and stationer of London, and treasurer of Christ's Hospital, died anno 1593, aged 66 years, and had issue one only son. His nephew John Norton, esq., stationer, and sometime alderman of this city, died without issue anno 1612, aged 55 years. Also Bonham Norton, of Church-Stretton, in the county of Salop, esq., stationer, and sometime alderman of this city, son of the aforesaid William, died April 5, anno 1635, aged 70 years. He had issue by Jane, daughter of Thomas Owen, esq., one of the judges of the Common Pleas, nine sons and four daughters, whereof three sons were here buried; Thomas and George unmarried, and Arthur, who married the only child of George Norton, of Abbot's Leigh, in the county of Somerset, esq., and having, by her, issue two sons, died October 28, anno 1635, aged 38 years. Jane Norton, the said widow of Bonham aforesaid, caused this monument to be erected near the sepulchres of the deceased." He gave six pounds

thirteen shillings and four pence, yearly to his company, to be lent to young men, free of the same company;* and the like sum yearly for ever to Christ's Hospital.

Richard Adams practised printing in 1559.

James Burrel, in 1559, lived without the north gate of St. Paul's, in the corner house of Pater-noster-row, opening into Cheapside.

Richard Harryson, in 1562, lived in Whitecross-street, at the sign of the Wheat-sheaf.

David Moptid, and John Mather, in 1556, were partners, lived in Red-cross-street, near St. Giles's Church, Cripplegate.

John Audeley, or Awdeley, in 1560, lived in Little Britain, without Aldersgate, where he continued till 1576.

John Alde, lived at the long shop adjoining St. Mildred's Church, in the Poultry,† in 1560.

Thomas Hacket lived in Lombard-street, at the sign of the Pope's Head, and kept a shop in the Royal Exchange, at the sign of the Green Dragon, in 1560.

Ralph, or Rafe Newbery, stationer, and warden of that company in the year 1583, being assignee with Henry Denham, and yielded up to the Stationers' Company a privilege. He lived in Fleet-street, a little above the conduit. Stow says, he gave a stock of books, and privileges of printing, to be sold for the benefit of Christ's Hospital and Bridewell. He was concerned with George Bishope, and others, in the printing of books, in 1596, and even after 1600.

Francis Coldock, stationer, and twice warden of that company; practised the art from 1561 to 1577, and died at the age of 72, in the year 1602.

William Griffith, lived in Fleet-street, at the sign of the Falcon, and kept shop in St. Dunstan's Church-yard, in the year 1561.

Lucas Harrison, or Harryson, in 1561, lived at the sign of the Crane, in St. Paul's Church-yard.

Thomas Colwell, succeeded Robert Wyer in business; he kept the sign of St. John the Evangelist, in St. Martin's parish, near

* The Stationers' Company, in their Abstract of Charitable Donations, say, "to the Poor of the Company." It is not, from the change of times, and value of money, of much consequence, but might as well have been stated correctly.

† He succeeded Richard Kele, *v. antè*, p. 125.

Charing Cross; and the same sign in Fleet-street, near the conduit; and continued in business from 1558 to the year 1575.*

Humphrey Toy, in 1550, lived at the Helmet, in St. Paul's Church-yard, and continued till 1574.

Henry Wykes, in 1562, lived in Fleet-street, at the sign of the Black Elephant, which he put under a compartment of a man carrying a sheep on his back.

Gerard Dewes, a good printer, kept a shop at the sign of the Swan in St. Paul's Church-yard, in the year 1562.†

Henry Denham, in 1564, lived at the sign of the Star, in Paternoster-row, with this motto round it, *os homini svblime dedit*, which he put at the end of several of his printed books. He lived also in Whitecross-street, and was assignee to William Seres in 1564. In the year 1586 he lived in Aldersgate-street, at the same sign. He frequently used a cut, of the Bear and Ragged Staff, within the Garter. He continued in business till 1587. See also *post*.

Richard Serlls, in 1566, lived in Fleet-lane, at the sign of the Half-Eagle and Key.

Henry Bynneman, was servant to Reynold Wolfe, and became an eminent printer. He dwelt in Thames-street near unto Baynard's Castle, and at Knight-rider's-street, at the sign of the Mermaid, with this motto about it, *omnia tempus habent*.‡

* He printed a book with wooden-cuts of the shapes of the "quarter of wheat, farthynge wastell, farthynge symnell, farthynge whyte lofe, a halfpenny whyte lofe, a halfpenny wheten lofe, a penny wheten lofe, and a halfpenny householde lofe."

† Of all the whimsical, far-fetched rebuses, adopted by early printers as their distinguishing mark or sign, perhaps that of Gerard Dewes was most pre-eminently so. The front, in perspective, and side of a house, of handsome enough elevation, with the side of the *garret* (Gerard), laid open to show two men throwing two *deuces* (Dewes) at dice.

‡ In the year 1580, February 6th, one Arthur Hall of Grantham, a member of the House of Commons, was accused of reflecting and reproaching Sir Robert Bell the Speaker, and several of the members, in a book dedicated to Sir Henry Knyvett, and set forth in print by Henry Bynneman, who said, that one John Welles, a scrivener in Fleet-street, did deliver the written copy to him, and when the book was printed, he delivered one book to Henry Shurlande, in Fryday-street, linnen draper, to be sent to Mr. Hall; and that afterwards, about a year past, he delivered to Mr. Hall six of the said books, and one more to Mr. Hall's man shortly after, and said, that Mr. Hall pro-

Thomas Purfoot, printer and stationer, had a shop in St. Paul's Church-yard, in 1544, and another at the sign of the Lucretia, within the New Rents in Newgate-market. He, or another of the

mised to get him a priviledge, whereupon he adventured (he sayeth) to print the book: and sayeth that the copy was written by Welles the scrivener; and that he received of the said Shurlande linnen cloth, to the value of six pounds, thirteen shillings, and fourpence, for printing of the book; and that he stayed, of his own accord, the publishing of the said book, till he were paid, whereas Mr. Hall was contented they should have been put to sale presently. Which report so made by Mr. Secretary, and withall, that Mr. Hall, and the printer, were both at the door, Mr. Hall was brought to the bar, and expressed his sorrow, if he had offended, was sure it was done with no malicious intent, prayed pardon, and willed the book should be suppressed. Then was Mr. Hall sequestred, and H. Bynneman brought to the bar, and affirmed, as secretary Wilson had said above, and wishing all the books had been burnt, before he had meddled with them; that Hall should say to him again, he would not so for 100 pounds that he had printed fourscore, or hundred of the sayd books, and was thereupon sequestred. Then was Shurlande brought to the bar, who confessed that Mr. Hall did write a letter unto him, and sent the book to get it printed; and was also sequestred. Welles the scrivener was brought to the bar, and said that Hall had paid him again the xx nobles, which he before had paid the printer; and so he was sequestred. Ordered to meet again three different times afterwards, when Hall was committed to the Tower for six months, and until he made a retaliation to the satisfaction of the house; to pay 500 marks; to be severed from being a member of this house, and to chuse another. He met with great encouragement from Archbishop Parker, as you may see in Strype's life of that archbishop, who allowed him to have a shop, or shed, at the north-west door of St. Paul's Church, at the sign of the Three Wells. He left Mr. Denham and Mr. Newbery assignees, and died 1583.

In 1573 Bynneman printed a small twelves volume with the following title; "The Art of Reason, rightly termed Witcraft, teaching a perfect way to argue and dispute, by Raphe Lever." From the preface of this book, which is dedicated to Walter Earl of Essex, is taken the following extract: "To prove, that the arte of reasoning may be taught in Englishe, I reason thus: first, we Englishmen have wits, as well as men of other nations have; whereby we conceyve what standeth with reason, and is well doone, and what seemeth to be so, and is not.—For artes are like to okes, which by little and little, grow a long time, afore they come to their full bigness. That one man beginneth, another oft times furthereth and mendeth; and yet more praise to be given to the beginner, than to the furtherer or mender, if the first did find more good things, then the follower did adde. Experience teacheth, that each thing which is invented by man hath a beginning, hath an increase, and hath also in time a full riepness. Now, although each worke is most

same name, printed a long time after 1660, as he is the third person named, of the twenty, who were allowed in the year 1637, by a decree of the Star-Chamber, to print for the whole kingdom.

Alexander Lacy, in 1566, lived in Little Britain.

Thomas East, Est, or Este, if the same person, lived in Aldersgate-street, at the sign of the Black Horse, and at other places, and signs, as the custom then was; which makes it difficult to assign, whether it was the same person or not. He appears to have been employed by Birde and Tallis, to whom Queen Elizabeth, in the 17th year of her reign, granted a patent. He (or they) printed music, and other books, from 1569 till after 1600. *Vide post.*

Richard Watkins, in 1570, lived in St. Paul's Church-yard, and had a shop adjoining to the little conduit in Cheapside. He had a patent with James Roberts for printing Almanacks; and was warden of the Stationers' Company in 1583, and then gave up his right of the sheet or broadside Almanack, for the relief of the poor of the company.

James Roberts, a considerable printer, who, with Watkins, had a patent for the sheet Almanacks in 1573. He was proprietor of upwards of 100 books, which he disposed of in the year 1594.

William How, in 1570, lived in Fleet-street, and continued in business till 1590.

Richard Jones, Jhones, or Johnes, printed in conjunction with Thomas Colwell, in 1570. He kept a shop at the south-west door of St. Paul's Church, and lived at the sign of the Rose and Crown, near Saffron-hill, in Holborn; and at the upper end of Fleet-lane, over against St. Sepulchre's Church, at the sign of the Spread Eagle. He printed several books in partnership with others.

Henry Middleton lived at the sign of the Faulcon in Fleet-

commendable when it is brought to his full perfection, yet, where the workmen are many, there is oftimes more praise to be given to him that beginneth a good worke, than to him that endeth it. For if ye consider the bookes that are now printed, and compare them with the bookes that were printed at the first, Lord, what a diversity is there, and how much do the last exceed the first! yet if you will compare the first and the last printer together, and seek whether deserveth more praise and commendation, ye shall find that the first did farre exceede the last: for the last had help of manye, and the first had help of none. So that the first lighteth the candle of knowledge (as it were) and the second doth but snuff it."

street, and printed in partnership with Thomas East so early as 1569; but whether he was the son of William Middleton, beforementioned, is uncertain.

William Williamson, in 1573, had a shop at the sign of the Sun, in St. Paul's Church-yard.

Thomas Vautrollier, who was a scholar and printer, from Paris, or Rouen, came into England about the beginning of Queen Elizabeth's reign, and first settled his printing office in Black Friars. He married his daughter Jakin to Richard Field, printer in Black Friars, Jan. 13, 1588, and buried several children in that parish, as appears by their church books. He was a most curious printer, as is evident from his productions. Mr. Baker says, he was the printer of Jordanus Brunus, in the year 1584, for which he fled, and the next year being at Edinburgh, he first taught that nation the way of doing their work in a masterly manner; where he continued until, by the intercession of friends, he procured his pardon; as appears by a dedication of his to the right worshipful Thomas Randolph, esq., where he returns him thanks for his great favour, and for assisting him in his great distress. He continued in the printing business from 1574 to 1588.

Christopher and Robert Barker, esqrs., the Queen's printers, in 1555, lived in Pater-noster-row, at the sign of the Tyger's Head, and kept a shop in St. Paul's Church-yard, at the sign of the Grashopper. He came of an ancient family, being descended from Christopher Barker, knt., King at Arms. Edward Barker, who is supposed to have been father to Christopher the printer, was, by a will dated Dec. 31, 1549, appointed heir to one William Barker, his cousin, who had a considerable estate of houses in London, but nothing in any county, and died Jan. 2, 1549. Queen Elizabeth granted a patent to our Christopher Barker, and Robert his son; which patent expresses itself to have been granted, in consideration of the father's great improvement of the art of printing. *Vide post.*

John Charlewood, in 1575, lived in Barbican, at the sign of the Half Eagle and Key, used many sorts of letter, and about the cut of his sign this motto, *post tenebras lvx*, and sometimes stiles himself servant to the right honourable the earl of Arundel. He continued in business till 1593.

Thomas Woodcock, stationer and bookseller, lived in St. Paul's

Church-yard, at the sign of the Black Bear, and married Isabel second daughter of John Cawood, esq. He continued in business from 1575, to 1591.

William Hoskins, in 1575, lived in Fleet-street.

John Shepard, in 1576.

Thomas Dawson, in 1577, lived at the Three Cranes, in the Vintry; and used a device of Three Cranes in a Vineyard, and continued in business till 1599.

Nicasius Yetsweirt, Esq., was clerk of the private seal, and secretary to Queen Elizabeth for the French tongue. He had a patent granted Nov. 18, 1577, the 20th of Elizabeth, for thirty years, for printing all manner of books, concerning the Common Laws of this realm.

Charles Yetsweirt, Esq., son of the before-mentioned Nicasius Yetsweirt, was also French secretary and clerk of the signet to Queen Elizabeth, had a patent granted him the 37th of Elizabeth, for thirty years to come, for printing all books concerning the laws. He continued in business, as Law-printer but one year, viz. 1594, as he died the beginning of the year following, when his widow continued exercising the art of printing and selling law books, but not without opposition from the Stationers' Company, which occasioned her to complain to the lord keeper and lord treasurer, but it does not appear what redress she had; yet it is imagined she had but little success, as she continued in business but two years.

Hugh Jackson, in 1577, lived in Fleet-street, near the conduit, at the sign of St. John the Evangelist. He continued in business till 1592.

Andrew Maunsell, in 1570, lived at the sign of the Parrot, in St. Paul's Church-yard, and continued in business about 30 years.

Robert Waldegrave, in 1578, first practised the art of printing in the Strand, near Somerset-house; from thence he removed to Foster-lane; but afterwards, by printing puritanical books, involved himself in troubles, which obliged him to retire to Wales; but being of a good family, by the assistance of friends, overcame his troubles, and was made printer to King James VI of Scotland, from whom he received a patent.

George Bishop, stationer, concerned with, and employed others,

in several large works, was deputy printer to Queen Elizabeth. He married Mary the eldest daughter to John Cawood, esq. He became alderman of London, and, among other legacies, left six pounds per annum to his company; and allowed ten pounds per annum for ever, towards maintaining preachers at St. Paul's Cross. He gave also six pounds per annum to Christ's Hospital.

John Harrison, in 1579, practised the art, and in 1583, was master of the Stationers' Company.

Abel Jeffs, in 1561, lived in the Old Bailey, at the sign of the Golden Cup; and, in 1584, at the sign of the Bell, in Philip-lane.

Thomas Scarlet, was a good printer, and in 1576 practised the art, and continued in business till 1596.

Henry Bamforde, in 1577.

Richard Webster, in 1578.

Edward Aggas, lived at the west end of St. Paul's Churchyard, and continued in business from 1558 to 1594.

John Wolfe, city printer in 1581: he practised the art of printing, and, as Stow says in his Survey of London, published by Strype, p. 223, in a contest between the patentees, and the Stationers' Company, taking upon him as a captain in this cause, was content with no agreement, but generally affirmed, that he might and would print any lawful book, notwithstanding any commandment of the Queen. And to that end had incensed the popularity of London, as in a common cause, somewhat dangerously. And with him several of the rest changing their minds, were associated, and laboured to overthrow those privileges the Queen had granted, or could grant. Whereupon the abovesaid committees of the Stationers' Company, finding them so disordered, would have bound them to appear before the Queen's council, which they promised to do; but after conference with their abettors, refused; and still prosecuted their complaints to her Majesty, garnishing the same with pretences of the liberties of London, and the commonwealth of the said company; and saying, the Queen was deceived by those, that were the means of obtaining such privileges. He afterwards was in such favour with the citizens, that he was made printer to the honourable city of London. He dwelt at Paul's Chain, and in Distaff-lane, over against the sign of the Castle, and had a shop in Pope's-head-

alley, in Lombard-street, in 1598; used the mark of a Fleur-de-lis seeding, and sometimes about it, *vbique florescit*. Was succeeded as city printer by John Windet. See p. 139.

Roger Ward, in 1582, lived near Holbourn conduit, at the sign of the Talbot, and as (Strype's edition of Stow says, p. 223) Wolf was one of these unruly printers, so Roger Ward was another, who would print any book however forbidden by the Queen's privilege, and made it his practice to print all kinds of books at his pleasure. The master and wardens of the company going to search his printing-house, according to the power they had, were resisted by his wife and servants; of which a complaint was made by the said master and wardens to the court. And again, in the year 1583, the master and wardens preferred a petition against this man, to the lord-treasurer, showing his contemptuous demeanor, doing contrary to all order and authority; and withall, his insufficiency to use the art of printing. The commissioners appointed by the council could bring him to nothing, but still he continued to print what he pleased without allowance, by his own authority, and such books as were warranted by her highness's letters patent to other men: and sold and uttered the same in city and country, to men of other arts; whereby the company sustained great loss, in taking the sale of them; and particularly to the decay of seven young men, who executed a privilege granted to William Seres for a yearly rent. This man, notwithstanding, had given two several bonds to the Queen, the one not to print any more disorderly, the other to bring in such books as he had so printed; but none performed. All this was laid open in the said petition: the signers of it were, John Harrison, master; and Richard Watkins and Ralph Newbury, wardens; and besides them Christopher Barker, John Day, William Norton, George Bishop, John Judson, and Francis Caldock; all booksellers, in these times, of the chiefest reputation.

Thomas Charde, in 1600, lived in Bishopsgate Church-yard, and had been engaged in the printing business from the year 1582.

Edward White, in 1583, lived at the little north door of St. Paul's Church, at the sign of the Gun.

William Bartlet, or Barthelet, as he spelt his name both ways, followed the business in 1578.

William Carter, was a daring printer, and printed a great many *treasonable** tracts, from the year 1579 to 1584.

Henry Marshe, in 1524, lived in the same house, in Fleet-street, in which Tho. Marshe, before-mentioned, lived.

Richard Yardley, and Peter Short, partners, lived at the sign of the Star, on Bread-street-hill, in 1584, and continued in business till 1603.†

Ninian Newton, in 1584, printed in partnership with Arnold Hatfield. They lived in Lothbury, and kept a shop at the Brasen Serpent, in St. Paul's Church-yard.

Robert Robison, Robertson, or Robinson, in 1585, lived in Fleet-lane, and also in Fewter-lane, Holborn. He continued in business till 1597.

Edmund Bollifant, lived in Elliot's-court, in the Little Old Bailey, and continued in business from 1585 till after 1602.‡

* Decreed so to be by the bishops and ministers of Queen Elizabeth. His greatest offence seems to have been, that of having printed a book in defence of a falling Queen, Mary of Scotland, when in the hands of her enemies, whose cruel policy, seconded by the jealousy of her sister (whatever may have been her real demerits), deprived her rival at once of crown and life. The book was written in French, and entitled, "The Innocency of the Scotch Queen," who was then a prisoner. A very dangerous book this was, no doubt!—He called her, the heir apparent of the crown! inveighed against the execution of the Duke of Norfolk!—and made base and false reflections upon two of the Queen's chief ministers of state, the Lord Treasurer, and the (then) late Lord Keeper, Bacon!!—Well; an opportunity soon offered in a "tangible" shape, of effectually silencing this contumelious son of the Press. In the year following (1580), he printed "A Treatise of Schism," 1,250 copies. This book was seized at his house on Tower-hill, and in January 1584, he was, at the Old Bailey, indicted, arraigned, and condemned, of high treason, and was sentenced to be drawn from Newgate to Tyborne, "and there be hanged, bowelled, and quartered;" and so urgent was it thought that speedy execution should follow the sentence, that the next morning he suffered accordingly. But this was not the ending of the affair, for it seems that "slanderous reports were spread abroad in seditious books, letters, and libels, thereby to enflame our countrymen, and her majesties subjects;" to counteract which, a book was published intituled, "A declaration of the *favourable dealing* of her majesty's commissioners, &c."

† They printed another book, which has lately been revived, viz. "Thomas Tusser's 500 points of good Husbandrie," 1593 and 1597.

‡ The fancy for old orthography is not new in our days; Bollifant printed "Aesop's fables in tru ortography, with granmer notz. Her-unto ar also

John Jackson, in 1585, in partnership with Bollifant, just before mentioned, and continued so till 1594.

Walter Venge, in 1585, lived in Fleet-lane, opposite the Maiden-head.

Simon Waterson, in 1585.

Thomas Lust, in 1585.

John Windet, a good printer, succeeded John Wolfe as printer to the Hon. City of London, and lived at the sign of the White Bear in Adling-street, near Bernard's Castle; and afterwards at the Cross-Keys, near Paul's Wharf. He used a device of Time cutting down a Sheaf of Corn, with a book clasped; on the cover are these words, *verbum Dei manet in æternum.* The compartment has the Queen's Arms at top, the City's on the right, and the Stationers' on the left, with his sign of the Bear beneath, and J.W. over it, and this motto, *homo non solo pane vivet,* round it. He continued in business from 1585 to 1651, when he was succeeded by Richard Cotes; in 1669 James Flesher, who was succeeded in 1672 by Andrew Clark; in 1679 Samuel Roycroft was appointed in that place, who, in 1710, was succeeded by John Barber, esq., who afterwards served the office of Lord Mayor; he was succeeded by George James, by whose widow the business was carried on for some time, when that office was conferred on Henry Kent, esq., Deputy of the Ward of Broad-street; who was succeeded by Mr. Charles Rivington; on whose resignation, in 1772, the office was conferred on Mr. Henry Fenwick, which he enjoyed till 1823, when Mr. Arthur Taylor obtained the appointment, and is (1824) the present City printer.

George Robinson, he practised the art of printing from 1586 to 1587.

Richard Robinson, printed in 1589.

Edward Allde, or Alde, in 1587, lived at the Golden Cup, without Cripplegate, where he continued for some time after 1600.

cooined the shorte sentencez of the wyz Cato, imprinted with lyke form and order: both of which authorz ar translated out of Latin intoo English, by William Bulloker.

Geu God the praiz
That teacheth al waiz,
When truth trieth
Erroor flieth.

Thomas Orwin, 1587, lived in Pater-noster-row, and continued in business till 1597.

Richard Field, a good printer, married the daughter of Vautrollier, who died in 1589, to whose business he succeeded, and continued in, till several years after 1600.

Toby Cook, in 1579, lived at the Tiger's Head, in St. Paul's Church-yard, where he continued till 1590.

William White, printed in 1582, and continued for some time after 1600.

Robert Dexter, in 1590, lived at the Brasen Serpent, in St. Paul's Church-yard, and was a benefactor to the Stationers' Company.

William Kerney, or Kearney, in 1591, lived in Adling-street, near Cripplegate.

Robert Bourne, and John Porter, partners, in 1591.

John Danter, in 1591, lived in Hosier-lane, near Holbourn conduit, and continued in business till the year 1596.

William Ponsonby, in 1591, lived at the Bishop's Head, in St. Paul's Church-yard.

William Barley, in 1592, lived in Grace-church-street, and was assignee of Thomas Morley.

Thomas Salisbury, Ralph Blowar, John Bowen, and John Busbie, were all printers who resided in London, yet not mentioned where, but only in 1593.

Richard Boyle, in 1593, lived at the sign of the Rose, in St. Paul's Church-yard.

Thomas Creed, in 1594, lived at the sign of the Catharine Wheel, near the Old Swan, in Thames-street, and frequently put to his books an emblem of Truth, with a hand issuing from the clouds striking on her back with a rod, and this motto round it, *veritas virescit vulnere*. He continued in business till 1607.

Adam Islip, from 1594 to 1603.

Gabriel Simpson, in 1595, at the sign of the White Horse, in Fleet-lane.

Vallintine Sims, or Simmes, in 1595, lived in Addle, or Adling-street, at the sign of the White Swan, near Barnard-castle, and continued in business till 1611.

Henrie Ballard, in 1597, lived at the sign of the Bear, without Temple-bar, opposite St. Clement's Church.

Felix Kingston, from 1597 to 1623.

John de Beauchesne, in 1597.

John Norton, Esq., the Queen's printer, in Latin, Greek, and Hebrew; he was of the Company of Stationers, to whom he gave 1000*l.* to purchase lands, to the value of 50*l.* per annum, and part to be lent to poor young men of the said company. He also gave 150*l.* to the parish of St. Faith, under St. Paul's Church, to purchase seven pounds, ten shillings, yearly for ever, to be given to the poor. Ten shillings to be annually paid for a sermon at St. Faith's, on Ash Wednesday; and to twelve poor persons (six of them to be free of the Company of Stationers, and appointed by the Court of Assistants, and six to be appointed by the parish), two pence weekly, and a penny loaf; the residue to be laid out in cakes, wine, and ale, for the Company of Stationers, either before or after the sermon. The sermon is annually preached, to which the livery at large are regularly invited, and every one who attends receives six buns, and partakes of a barrel of good ale, provided for the occasion: those who do not attend may receive the buns by sending the letter of invitation; and the Court of Assistants *dine* together on that day in commemoration of the donor. In 1593 he lived at the sign of the Queen's Arms, in the house lately inhabited by his cousin Bonham Norton; and, being a man of eminence, employed several others to print for him.

He appears to be the first who introduced printing into the College at Eton, in 1610.

George Shaw, in 1598.

Thomas Judson, from 1584 to 1599.

Richard Brancocke, or Bradock, in 1598.

Simon Strafford, or Stafford, in 1599, lived on Addle-hill, near Carter-lane.

OF PRIVILEGED OR PATENT PRINTERS.

1500.—About the year 1500, or probably somewhat earlier, Pynson was, by patent of Henry VII, invested with the office of King's Printer, which may be regarded as the first instance of the appointment.—*Antè*, p. 111. From the circumstance, however, of Pynson and Guilliam Faques, having both printed an Act of

Parliament passed in the 19th of Henry VII (1503), and both having styled themselves "Printers to the King" (*antè*, p. 112), it has been inferred, that they were both included in the same patent. Whether this was the case or not, it is now difficult to determine, as the document by which the privilege was conferred cannot be discovered.

1530.—After the death of Pynson, the next Patentee Printer in succession, was Thomas Berthelet, Esq. (*antè*, p. 115), who lived at the sign of Lucretia Romana, in Fleet-street; and, as there is no copy known to remain of the grant to Pynson and Faques, the patent to Berthelet is the most ancient extant. It is as follows:

Rex omnibus ad quos præsentes, &c., salutem. Sciatis quod nos de gratia nostra speciali, ac ex certa scientia, et mero motu nostris dedimus et concessimus, ac per præsentes damus et concedimus delecto servienti nostro Thomæ Berthelet impressori nostro quandam annuitatem, sive quendam annualem redditum quatuor librarum sterlingorum, habendum et annuatim percipiendum prædictam annuitatem, sive annualem redditum quatuor librarum eidem Thomæ Barthelet, a festo Paschæ, anno regni nostri vicesimo primo, durante vita sua, de thesauro nostro ad receptum scaccarii nostri per manus thesaurar. Et camerarii nostrorum ibidem pro tempore existen. ad festa sancti Michaelis archangeli et Paschæ per equales portiones, et quod expressa mentio, &c. in cujus, &c. testimonium rei apud Westmonasteriensem, vicesimo secundo die Februarii, anno regni Henrici octavi vicesimo primo. Per breve de privato sigillo.

1530.—The first abridgement of the English Statutes printed in English, was done by John Rastell.—*Antè*, p. 113. The preface to this work details the arguments which caused the old Norman French to give place to the English language, in enacting the laws of this country. It is on this account an interesting relic, and I therefore retain it as given by Luckombe.

Because that the lawys of this realme of England, as well the statutes as other jugementys and decreys, be made and wrytyn most commynly in the Frenche tongue, dyuerse men thereof muse, and have oftimis communycacion and argument consyderyng, that in reason euery law wherto any people shuld be boundyn, ought and shulde be wryttyn in such manere and so opynly publishyd

and declaryd, that the people myght sone, wythout gret dyffyculte, have the knoulege of the seyd laws. But the verey cause why the seyd laws of Englond were writin in the French tonge, shuld seme to be this: furst, yt ys not unknowyn, that when Wyllyam, duke of Normandy, came in to thys land, and slew kyng Herrold, and conqueryd the hole realme, there was a grete nomber of people, as well gentylmen as other, that cam wyth hym, whych understode not the vulgar tong, that was at that tyme vsyd in this realme, but onely the French tong: and also, because the seyd kyng, and other grete wyse men of hys counsel, perseyuyd and suposyd that the vulgar tong, which was then usyd in this realme was, in a manere, but homely and rude, nor had not so grete copy and haboundaunce of wordys as the Frenche tong than had, nor that vulgare tong was not of yt selff suffycyent to expown and tu declare the matter of such lawys and ordenauncis, as they had determynid to be made for the good governaunce of the people so effectually, and so substancyally, as they cowd indyte them in the French tong, therefore they orderid, wrot, and indytyd the seyd lawys, that they made, in the French tong. And forthermore, long after the commyng off kyng Wylyam conquerour, because that the vse of the French tong in this realme began to mynysh, and be cause that dyuers people that inhabityd wythin this realme, wich coud nother speke the vulgare tonge of thys realme, nother the French tong; therefore the wys men of this realme causyd to be ordyryd, that the matters of the law, and accions betwen partes shuld be pledyd, shewyd and defendyd, answerd, debatyd and juggyd in the English vulgar tong; and more over, that wryttyn and enteryd of record in the rollys in the latyn tong, because that every man generally, and indifferently, myght haue the knolege thereof, as apperyth by a statute made in the xxxxvi yere of E. iii. c. vltimo; wherfore, as I suppose, for these causis before rehersyd, which was intendyd for a ryght good purpose.

But yet, besyde thys now of late days, the most noble prynce, our late soverayne lord, kyng Henry the VII worthi to be callid the second Salomon (which excellyd in polytyk wysedome all other princes that reinid in thys realme before thys time) concydering and wel parseyuyng that our vulgare Englysh tong was maruellously amendyd and augmentyd, by reason that dyuers famous clerkis and lernyd men had translated, and made many

noble workis into our Englysh tong, whereby there was mych more plenty and haboundaunce off Englysh usyd, than ther was in tymys past; and by reason thereof our vulgar tong, so amplyfyed and suffycyent of hyt self to expown any lawys or ordynancys, whych was nedeful to be made for the order of thys realme; and also the same wise prince consideryng, that the vniversall people of this realme had gret plesur, and gave themself gretly to the redyng of the vulgare Englysh tong, ordeynyd and causyd, that all the statutys and ordynauncis, whych were made for the commyn welth of this realme in hys days, shuld be endytyd and wryttyn in the vulgare Englysh tong, and to be publyshyd, declaryd, and ymprintyd, so that then vniversally the people of the realme myght sone haue the knolege of the seyd statutes and ordynauncys, whych they were bounde to observe, and so by reason of that knolege to avoyd the danger and penaltes of the same statutys, and also the better to lyff in tranquylyte and pease; whych dyscrete, charytable and reasonable order, our most dred sovereyne lorde that now ys, kyng Henry the VIII hath continuyd, and folowyd, and causyd all the statutys, that haue be made in hys dayes, to be also indytyde and wryttyn in our Englysh tong, to the intente that all hys lege people myght haue the knolege thereof. All whych goodly purposys and intentys, in my mynde ofte tymys reuoluyde, hath causyd me to take thys lytyll payne to translate out of Frenche into Englyshe the abbreviacyon of the statutys, which conteyn forfeytours and penaltes, made before the fyrst yere of the reyn of our late souerein lorde kyng Henry the VII. And also thoughe the statutys, made as well in the tyme of the seyde kyng Henry the VII, as in the tyme of our souerein lorde, that now ys, be sufficyently indytid and writyn in our Englysh tong, yet to them that be desirous shortly to knowe the effect of them, they be now more tedyouse to rede, than though the mater and effect of them were compendyously abbreuiat: wherefore now, as farr as my symple wytt and small lernynge wyll extende, I haue here takyn upon me to abbregg the effect of them more shortly in this lyttyll book, besechyng all them, to whome the syght here of shall come, to accept hyt in gree; and though they shall fortune to fynde any thynge mysreportyd, or omytted by my neglygens, elis by neglygens of the prynters, that yt wolde lyke them to pardon me,

and to consyder my good wyl, which haue intendid yt for a comyn welth, for the causis and consideracyons before rehersyde; and also, that yt fortune them to be in dout in any poynt thereof, yet, yf it please them, they may resorte to the hole statute, whereof thys book is but a bregement, and in manere but a kalender. And forthermore I wyll aduertyse every mon, that shall fortune to haue any matter in ure, to resorte to some man, that ys lernyd in the laws of thys realme, to haue his councel in such poyntis, which he thinkith doubtfull concernyng these seid statutis, by the knolege wherof, and by the dylygent obseruyng of the same, he may the better do hys dewte to hys prynce and souerine, and also lyf in tranquilite and pease wyth his neyghbour, accordyng to the pleasure and commandment of all mighti God, to whom be eternal laud and glori. Amen.

1540.—A patent for printing the Epistles and Gospels was, in 1540, granted to Richard Banks.—*Antè*, p. 58. This appears to me to have been a privilege much more comprehensive in its nature than those just before noticed, and to have some analogy to that sort of property now denominated COPY-RIGHT, of which we may perhaps deem it the first instance. It runs thus:

"Henry the eighth, by the grace of God, king of England and of France, defender of the Faith, lord of Ireland, and in earth supreme head immediately under Christ of the Church of England. To all printers of books within this realm, and to all our letters hearing or seeing, greeting. Be it known to all, that we of our especial grace have given privilege unto our well beloved subject Richard Banks, that no person within this realm shall print any manner of books whatsoever that our said subject shall first print within the space of seven years next ensuing the printing of every such book so by him printed, upon pain of forfeiture of the same. Wherefore we will and command, that you, nor none of you, do presume to print any of the said books during the time aforesaid; as you tender our pleasure and will, avoid the contrary."

1533.—In the 25th of Henry VIII (1533), was passed the following Act, touching the importation and binding of books, and for providing against enhancing their prices.

Whereas by the provision of a statute made in the first year of the reign of king Richard III, it was provided in the same act, that all strangers repairing unto this realm might lawfully bring

into the said realm, printed and written books, to sell at their liberty and pleasure. 2. By force of which provision there hath come into this realm, sithen the making of the same, a marvelous number of printed books, and daily doth; and the cause of making of the same provision seemeth to be, for that there were but few books, and few printers, within this realm at that time, which could well exercise and occupy the said science and craft of printing: nevertheless, sithen the making of the said provision, many of this realm, being the king's natural subjects, have given themselves so diligently to learn and exercise the said craft of printing, that at this day there be within this realm a great number of cunning and expert in the said science or craft of printing: as able to exercise the said craft in all points, as any stranger in any other realm or country. 3. And furthermore, where there be a great number of the king's subjects within this realm, which live by the craft and mystery of binding of books, and that there be a great multitude well expert in the same, yet all this notwithstanding there are diverse persons, that bring from beyond the sea great plenty of printed books, not only in the Latin tonge, but also in our maternal English tonge, some bound in boards, some in leather, and some in parchment, and them sell by retail, whereby many of the king's subjects, being binders of books, and having no other faculty wherewith to get their living, be destitute of work, and like to be undone, except some reformation be herein had. Be it therefore enacted by the king our sovereigne lord, the lords spiritual and temporal, and the commons in this present parliament assembled, and by authority of the same, that the said proviso, made the first year of the said king Richard the third, that from the feast of the nativity of our Lord God next coming, shall be void and of none effect.

II. And further, be it enacted by the authority aforesaid, that no persons, resiant, or inhabitant, within this realm, after the said feast of Christmas next coming, shal buy to sell again, any printed books, brought from any parts out of the king's obeysance, ready bound in boards, leather, or parchment, upon pain to lose and forfeit for every book bound out of the said king's obeysance, and brought into this realm, and brought by any person or persons within the same to sell again contrary to this act, six shillings and eight pence.

III. And be it further enacted, by the authority aforesaid, that no person or persons, inhabitant, or resiant, within this realm, after the said feast of Christmas, shall buy within this realm, of any stranger bourn out of the king's obedience, other then of denizens, any manner of printed books, brought from any the parts beyond the sea, except only by engross, and not by retail, upon pain of forfeiture of six shillings and eight pence, for every book so bought by retail, contrary to the form and effect of this estatute. 2. The said forfeitures to be always levied of the buyers of any such books contrary to this act, the one half of the said forfeitures to be to the use of our sovereign lord the king, and the other moiety to be to the party that will seize, or sue for the same in any of the king's courts, to be by bill, plaint, or information, werein the defendant shall not be admitted to wage his law, nor no protection, ne essoin shall be unto him allowed.

IV. Provided always, and be it enacted by the authority before said, that if any of the said printers, or sellers of printed books, inhabited within this realm, at any time hereafter, happen in such wise to enhance, or encrease the prices of any such printed books in sale or binding, at too high and unreasonable prices, in such wise as complaint be made there of unto the king's highness, or unto the lord chancellor, lord treasurer, or any of the chief justices of the one bench, or the other, that then the same lord chancellor, lord treasurer, and two chief justices, or two of any of them, shall have power and authority to enquire thereof, as well by the oaths of twelve honest and discreet persons, as otherwise by due examination by their discression. 2. And after the same enhauncing and encreasing of the said prices of the said books and binding, shall be so found by the said twelve men, or otherwise, by examination of the said lord chancellor, lord treasurer, and justices, or two of them at the least, that then the same lord chancellor, lord treasurer, and justices, or two of them at the least, from time to come, shall have power and authority to reform and redress such enhauncing of the prices of printed books from time to time by their discressions, and to limit prices as well of the books, as for the binding of them. 3. And over that, the offender or offenders thereof being convict by examination of the same lord chancellor, lord treasurer, or two justices, or two of them, or otherwise, shall lose and forfeit for every book by them sold,

whereof the price shall be enhanced for the book, or binding thereof, three shillings and four-pence, the one half thereof shall be to the king's highness, and the other half to the parties greived, that will complain upon the same, in manner and form before rehearsed.

1526.—The publication of the New Testament by Grafton, occasioned the then Bishop of London to issue the following prohibition:

Cuthbert, by the permission of God, Bishop of London, unto our well beloved in Christ, the Arch-deacon of London, or to hys officiall, health, grace, and benediction. By the duety of our pastorall office, we are bounde diligently with all our power to foresee, provide for, roote out, and put away all those thynges, which seem to tend to the peril, and daunger of our subjects, and especially to the destruction of their soules. Wherefore we hauyng understandyng, by the report of divers credible persons, and also by the evident apparaunce of the matter, that many children of iniquitie, maintayners of Luthers sect, blynded through extreame wickedness, wandrying from the way of truth, and the catholicke fayth, craftely have translated the New Testament into our English tongue, entermedlyng therewith many hereticall articles, and erroneous opinions, pernicious and offensive, seducyng the simple people attemptyng by their wicked and perverse interpretations, to prophanate the majestye of the scripture, which hitherto hath remained undefiled, and craftely to abuse the most holy word of God, and the true sense of the same, of the which translation there are many bookes imprinted, some with gloses, and some without, contayning in the Englishe tongue that pestiferious and most pernicious poison, dispersed throughout all our diocesse of London in great number; which truly, without it be speedily foreseene, wythout doubt will contaminate, and infect the flock committed to us, with most deadly poyson and heresie, to the grieuous peril and danger of the soules committed to our charge, and the offence of God's divine majestie: wherefore we Cuthbert the bishop aforesaid, grevously sorrowyng for the premisses, willyng to withstand the crafte and subtletie of the ancient enemy, and hys ministers, which seek the destruction of my flock, and with a diligent care to take hede unto the flock committed to my charge, desiring to provide speedy

remidies for the premises; we charge you jointly and severally, and by vertue of your obedience straightly enjoyn and commaunde you, that by our authority, you warn, or cause to be warned, all and singular, as wel exempt as not exempt, dwelling within your arch deaconries, that within xxx days space, whereof x dayes shall be for the first, x for the second, and x for the third peremtory terme, under paine of excommunication, and incurring the suspicion of heresie, they do bring in, and really deliver unto our vicare generall, all and singular such bookes conteyning the translation of the New Testament in the Englishe tongue; and that you doe certifie us, or our sayd comissarye, within ii monethes after the day of the date of these presentes, duely, personally, or by your letters, together with these presentes, under your seals, what you have done in the premisses, under pain of contempt. Given under our seale the xxiii of October, in the v yere of our consecration, anno 1526."

Another commission, in like manner and same form, was sent to the three other archdeacons, viz. Middlesex, Essex, and Colchester, for the execution of the same matter, under the bishop's seal.

It is very plain, that the bishop of London's prohibition was very little regarded, and not very readily obeyed; the bishops and clergy, therefore, made great complaints to the king of this translation, on which his majesty resolved to take this matter into consideration himself. In 1533, the Convocation met, and among other things, decreed, that the Scripture should be translated into the vulgar tongue; but at that time it was not carried into execution.

1535.—The first edition of the whole Bible in the English language, being the translation by Miles Coverdale, was published by Grafton. This noble work was printed abroad, probably at Paris, or as some think, at Marsburgh, in Hessia: for Francis I, king of France, granted a license to Richard Grafton and Edward Whitchurch, to print an English Bible there. Six copies were presented to Archbishop Cranmer and Lord Cromwell. It was a folio, dedicated to the king in the following manner:—

Unto the moost victorious prynce and our moost gracyous soveraygne lord kynge Henry the eyghth, kynge of Englande

and of France, Lorde of Irelande, &c. Defendour of the fayth, and under God the chefe suppreme heade of the church of Englande.

The ryght and just administracyon of the lawes that God gave unto Moses and unto Josua: the testimonye of faythfulness that God gave of David: the plenteous abundaunce of wysedome that God gave unto Salomon: the lucky and prosperous age with the multiplicacyon of sede which God gave unto Abraham and Sara his wyfe, be geven unto you, moost gracyous prynce, with your dearest just wyfe and moost vertuous pryncesse quene Jane. Amen.—This dedication is thus subscribed,

Your grace's humble subjecte and daylye Oratour,
Myles Coverdale."*

In this dedication he tells his majesty that "The blynd bishop of Rome no more knew what he did when he gave him this title, Defender of the Faith, than the Jewish bishop, Cayphas, when he prophesied that it was better to put Christ to death, than that all the people should perish: that the pope gave him this title because his highness suffered his bishops to burne God's word, the root of faith, and to persecute the lovers and ministers of it, where in very deed he prophecyed, that by the righteous administration of his grace the faith should be so defended, that God's word, the mother of faith, should have its free course thorow all Christendome, but especially in his grace's realme: that his grace in very deed should defende the faith, yea even the true faith of Christ, no dreames, no fables, no heresye, no papistical inventions, but the uncorrupt faith of God's most holy word; which, to set forth, his highness with his most honourable council applied all studie and endeavour."

He next observed to his majesty, that "Forsomuch as the

* Coverdale was a native of Yorkshire, and afterwards professed of the house of Austin Friers in Cambridge, of which Dr. Barnes was prior, who was burnt for pretended heresy. One of this name took the degree of bachelor of canon law, A. D. 1530; but this seems too late for our Coverdale. However, entertaining the same opinions with his prior, and finding himself in danger by so doing, he fled beyond sea, where he chiefly applied himself to the study and translation of the Holy Scriptures.

word of God is the only truth that driveth away all lyes, and discloseth all juggling and deceit, therefore is our Balaam of Rome so loth that the Scripture should be known in the mother-tongue, lest if kings and princes (especially above all other) were exercysed therein, they should reclaim and chalenge again their due authority, which he falsely hath usurped so many years, and so to tie him shorter; and lest the people, being taught by the word of God, should fall from the false fayned obedience of him and his disguised apostles unto the true obedience commanded by God's own mouth, as namely, to obey their prince, their father and mother, &c. and not to step over them to enter into his painted religions. For that the Scripture declareth, most abundantly, that the office, authoritie, and power given of God unto kings is in earth above all other powers: that, as ther is nothing above God, so is ther no man above the king in his realme; but that he only under God is the chief head of all the congregation and church of the same. And in token that this is true, he said ther hath been of old antiquitie, and was yet unto that day, a loving ceremonie used in our realme of England, that when the king's subjects read his letters, or begun to talk or discourse of his majestie, they moved their bonnets for a sign and token of reverence unto him, as to their most sovereign lord and head under God, which thing no man used to do to any bishop:—that no priest or bishop is exempt (nor can be lawfully) from the obedience of his prince:—that Aaron was obedient unto Moses; Eleasar and Phineas were under the obedience of Josua: that Nathan the prophet fell down to the ground before king David; he had his prince in such reverence, he made not the king for to kiss his foot, as the bishop of Rome maketh emperors to do, notwithstanding he spared not to rebuke him, and that right sharply, when he fell from the word of God to adultery and manslaughter: for he was not afraid to reprove him of his sins, no more than Helias the prophet stode in fear to say unto king Achab, it is thou and thy father's house that trouble Israel, because ye have forsaken the commandments of the Lord and walk after Baal; and as John Baptist durst say unto kynge Herode, it is not lawful for thee to take thy brother's wife?"

He next takes notice of the intolerable injuries done unto God, to all princes, and the commonalties of all christian realms, since

"they who should be only the ministers of God's word became Lords of the world, and thrust the true and just princes out of their rooms." This he imputes to "the ignorance of the Scripture of God, and to the light of God's word being extinct, and God's law being clean shut up, depressed, cast aside, and put out of remembrance." But he adds, that "By the king's most righteous administration it was now found again; and that his majesty, like another Josia, commanded straitly, that the law of God should be read and taught unto all the people."

As to the present translation, Coverdale observes here, and in his epistle to the reader, that "It was neither his labour nor desire to have this work put into his hand, but that being instantly required to undertake it, and the Holy Ghost moving other men to do the cost thereof, he was the more bold to take it in hand. Besides, he considered how great pitie it was that the English should want such a translation so long, and called to his remembrance the adversitie of those who were not only of ripe knowledge, but would also with all their hearts have performed that they begun, if they had not had impediments. According, therefore, as he was desired, he took the more upon him, he said, to set forth this special translation, not as a checker, reprover, or despiser of other men's translations, but lowly and faithfully following his interpreters, and that under correction. Of these, he said he made use of five different ones, who had translated the Scriptures not only into Latin, but also into Dutch." Accordingly, he made this declaration, that he "had neither wrested nor altered so much as one word for the maintenance of any manner of secte, but had, with a clear conscience, purely and faithfully translated out of the foregoing interpreters, having only the manifest truth of the Scripture before his eyes." But because such different translations, he saw, were apt to offend weak minds, he therefore added, that "he was sure that there came more understanding and knowledge of the Scripture by these sundry translations than by all the glosses of our sophistical doctors. The readers, therefore, he said, should not be offended though one call a scribe that another calleth a lawyer, or elders that another calleth father and mother, or repentance that another calleth penance or amendment. For if we were not deceived by men's traditions, we should find no more diversitie between these

terms than between four-pence and a groat. And this manner, he said, he had used in this his translation, calling it in some place penance that in another he called repentance; and that not only because the interpreters had done so before him, but that the adversaries of the truth might see that we abhor not this word penance no more than the interpreters of Latin abhor *pœnitere* when they read *resipiscere*. Only, he desired that God's people be not blinded in their understanding, lest they believe penance to be aught save a very repentance, amendment, or conversion unto God, and to be an unfained new creature in Christ, and to live according to his lawe. For else shall they fall into the old blasphemie of Christ's blood, and believe that they themselves are able to make satisfaction unto God for their own sins."

He concluded his dedication to the king with telling his grace, that "considering his imperial majestie not only to be his natural soveraygne liege lord and chefe head of the Church of England, but also the true defender and maintener of God's lawes, he thought it his dutie and to belonge unto his allegiance, when he had translated this Bible, not only to dedicate this translation to his highness, but wholly to commit it unto him, to the intent that if any thing therein be translated amiss, it might stand in his grace's hands to correct it, to amend it, to improve it, yea and clean to rejecte it, if his godly wisdom should think it necessary." The same humble opinion of this his performance, he expresses at the close of his epistle to the reader, that "though the Scripture be not worthily ministered unto him in this translation, by reason of his rudeness, yet if he was fervent in his prayer, God should not only send it him in a better shape, by the ministration of other that began it afore, but shall also move the hearts of them which as yet medled not with all to take it in hand."

By what Coverdale here says to the king, it seems plain that it was now allowed by his authority that the Holy Scriptures should be had and read in English. The same is as plainly intimated in a little MS. manual of devotions, which, according to the tradition of the worthy family in which it is preserved, was the present of Queen Anne Boleyn to her maids of honour:—"Grante us, most mercyful father, this one of the greatest gyftes that ever thowe gavest to mankynde, the knowledge of thie holy wille and gladde tidinges of oure saluation, this greate while oppressed with

the tyrannye of thy adversary of Rome and his fautors, and kepte close undre his Latyne Lettres, and now at length promulgate, publyshed, and sette at lybertye by the grace poured into the harte of thy supreme power our prince, as all kinges hartes be in thie hande, as in the olde lawe dydest use lyke mercye to thie people of Israell by thie hie instrument, the good king Josia, whiche restored the temple decayed to his former beawtie, abolyshed all worshippynge of images and ydolatrye, and sette abrode the lawe by the space of many hundred yeres befor clean oute of remembraunce."

There is a plain inconsistency with the title or preamble of the dedication to the king, wherein, as has been before observed, Coverdale mentions the king's dearest just wife Jane, whereas it is certain the king was not married to her till May 20, 1536, more than half a year after the date of finishing this Bible. The only way I can think of to reconcile this difference is thus; that, after this Bible's being finished at the press in October, Coverdale, hearing from his friends in England that Queen Anne was declining at court, thought it prudent to defer the publication of it till he saw what turn affairs would take, and after the king's marrying Queen Jane, who was thought to favour the Reformation, then made the fore-mentioned dedication to the king, or however, altered the title of it as it stands now, and reprinted it. This last is the more probable, as in another copy of this translation, which has this dedication, the text, character, and every thing else alike, or the same with this, it is "your dearest just wyfe and most vertuous princesse Quene Anne."

The convocation of the province of Canterbury assembling June 9, the year 1536, Dr. Heylin tells us that the clergy then agreed upon a form of a petition to be presented to the king, that he would graciously indulge unto his subjects of the laity the reading of the Bible in the English tongue, and that a new translation of it might be forthwith made for that end and purpose. By this it appears that the clergy did not approve of the translation already made by Tyndal and Coverdale, and that their attempt, which they made two years ago to have the royal permission to make a new one did not succeed.

Soon after the finishing this Bible, were published by Lord Cromwel, keeper of the privy seal, and vicegerent to the king for

and concerning all his jurisdiction ecclesiastical within his realme, "Injunctions to the Clergy, by the authorite of the King's Highnesse," the seventh of which was as follows :—

"That every person or proprietary of any parish churche within this realme shall on this side the feast of St. Peter ad vincula (August 1) nexte comming prouide a boke of the whole Bible, both in Latin and also in English, and lay the same in the quire for everye man that will to loke and read theron; and shall discourage no man from the reading any parte of the Bible, either in Latin or English, but rather comfort, exhort, and admonish every man to read the same as the very word of God and the spiritual foode of manne's soul, whereby they may the better knowe their duties to God, to their soueraigne lord the king, and their neighbour; ever gentilly and charitably exhorting them, that, using a sober and modest behavioure in the reading and inquisition of the true sense of the same, they doo in no wise stifly or eagerly contend to stryve one with another about the same, but referre the declaration of those places that be in controversie to the judgemente of them that be better learned." This seems a confirmation of Coverdale's Bible being licensed by the king, since by this injunction it is ordered to be had in churches, and there read by any that would, there being no other Bible in English at this time than Coverdale's.

Whether the archbishop had a mind to have Tyndal's prologues and notes reprinted, or the printers thought such an edition would sell well, we find the next year (1537) published another edition of the English Bible in folio, with the following title :—

"The Byble, which is all the Holy Scripture, in which are contayned the Olde and Newe Testament, truely and purelye translated into Englysh. By Thomas Matthewe."

At the beginning of the prophets are printed on the top of the page the initial letters R. G. *i. e.* Richard Grafton, and at the bottom E. W. *i. e.* Edward Whitchurch, who were printers, and at whose charge and expense this impression was made. At the end of the Old Testament are the initial letters W. T. *i. e.* William Tyndal, as if it was translated all by him.

However this be, Cranmer, who had been promoted to the see of Canterbury four years before, favoured this edition of the English Bible, and by his interest with lord Cromwel not only

procured the royal license for it, but that in the injunctions, which as the king's vicar-general, Cromwel published the next year, "the clergy should be ordered to provyde on thys syde the feaste of N. next comyng one booke of the whole Byble of the largest volume in English, and the same set up in some convenient place within their churches that they have cure of, wheras their parishioners might most commodiously resort to the same and read it; and that the charges of this book should be ratably borne betweene them and the parishioners aforesaid; that is to say, thone half by the parson, and the other half by them," &c. as in the Injunctions, 1536, before-mentioned.

A declaration was likewise published by the king, to be read by the curates of the several churches, wherein they were to tell the people, "that it had pleased the king's majestie to permit and command the Bible, being translated into their mother tongue, to be sincerely taught by them, and to be openly layd forth in every parish church." But it was observed, that notwithstanding these injunctions, &c. the curates were very cold in this affair; and that therefore they read the king's injunctions and declaration in such a manner that scarce any body could know or understand what they read. Too many of the people, likewise, how fond soever they appeared to be of the holy Scriptures, made but an ill use of the liberty now granted them of reading or hearing them read in the tongue wherein they were born. Instead of reading this holy book to learn their duty, and to speak and act as Christians, they read it to satisfy their vain curiosity and indulge their humours, and accordingly contended and disputed about what they read in alehouses, and other places very unfit for such conferences. This, therefore, was another part of the design of the above-mentioned declaration, to caution the people against taking such indecent liberties, and to exhort them to make a better use of this privilege which the king had now granted them.

Grafton, one of the undertakers of this edition, complained to Lord Cromwel, that "there were some who did not believe that it had pleased the king's grace to license it, and therefore desired it might be licensed under the privy seal, which, he said, would be a defence at this present, and in time to come, for all enemies and adversaries of the same." He likewise intimated to his lordship a design of printing this Bible upon him by the Dutch

printers in a less volume and smaller letter, that so they might undersell him, which might be to his and his friends ruin, he having expended on this edition 500 pounds. He, therefore, desired of his lordship to obtain for him of the king, that "none should print this Bible but himself for three years." His letter to Archbishop Cranmer is dated 13 August, 1537.

The Dutch printers, as has been said before, had a design to print upon Grafton and Whitchurch their late edition of the English Bible, as they had done before Tyndal's of the New Testament alone. This would have been a very great loss to them, as well as an injury and wrong done to the public. Of this design, therefore, Grafton complained, in a letter to their great friend the lord privy-seal. He represented to his lordship the great expense they had been at in procuring this edition, no less than 500 pounds, a great part of which they must necessarily lose if the Dutch went on with their design to print it again in a less volume and smaller letter, and thereby to undersell them. But that not only they but the public would suffer by this act of piracy, since it was like to prove a very bad edition, both for paper and print, and exceedingly erroneous and incorrect; for that the printers were Dutchmen that could neither speak nor write true English, and were generally so covetous as not to give sufficient encouragement to any learned men to oversee and correct the press. An instance of this we had before in Joye, who very justly complained of the little he had allowed him for his pains in correcting a very faulty copy, which had been made so through the Dutchmen's ignorance of the language, and their haste and carelessness in composing. Therefore Grafton desired the favour of Lord Cromwel to obtain for him of the king the privilege of the sole printing this Bible for three years. To which he added another request, that every curate might be obliged to have one of these Bibles, and every abbey six; by which it should seem as if he intended another impression, since the number already printed, viz. 1,500, was no wise sufficient to answer so large a demand.

However this be, a resolution was certainly taken to revise this edition of Matthews's, and to print it again without the prologues or annotations, at which great offence was pretended to be taken,

as containing matters heretical, and very scandalous and defamatory. For this purpose were Grafton and Whitchurch employed, who, because at that time there were in France better printers and paper than could be had here in England, procured the king's letters to the French king, for the liberty of printing it at Paris. Accordingly they had the royal license so to do, and had almost finished their design, when, by an order of the Inquisition, dated December 17, 1538, the printers were inhibited under canonical pains to print the said English Bible, and were had before the Inquisition, and charged with heresy. The English who were there to correct the press and take care of the impression, were all forced to flee, and the impression, consisting of 2,500 books in number, was seized and confiscated. But, by the encouragement of Lord Cromwel, some of the English returned to Paris, and got the presses, letters, and printing-servants, and brought them over to London, where they resumed the work, and finished it next year.

Mr. Thoresby mentions the New Testament printed at Paris, by Bishop Bonner's means, in 8vo. in two columns, English and Latin, the latter of which was smaller than the other; and observes of it, that in it, 1 Peter ii, 13, was rendered unto the kynge as under the chefe heade.

In November, 1539, the king, by his letters patent, directed to all and singular printers and booksellers within this his realm, &c. appointed the Lord Cromwel, keeper of his privy-seal, to take special care and charge, "that no manner of person or persons within this his realm, shall enterprise, attempt, or set in hand to print any bible in the English tongue, of any manner of volume, during the space of five years next ensuing the date thereof, but only all such as shall be deputed, assigned, and admitted, by the said Lord Cromwel." Accordingly it appears by the bibles printed this very year his lordship assigned others besides Grafton and Whitchurch, as John Biddel, Thomas Barthlet, &c. to print bibles in the English tongue.

1539.—The first of these printed this year is a Bible in a large folio, this is called CRANMER'S BIBLE, with the following title: "The Byble in Englyshe, That is to saye the content of all the Holy Scrypture bothe of the Olde and Newe Testament,

truly translated after the veryte of the Hebrue and Greke textes, by the dylygent studye of dyuerse excellent learned men, expert in the forsayde tonges. Prynted by Rychard Grafton and Edward Whitechurch, *Cum priuilegio ad imprimendum solum.* 1539."

Round this title, in a border, is the following representation finely cut in wood, and designed, it is said, by Hans Holbein. On the top of it is a representation of the Almighty in the clouds of Heaven, with both his hands stretched out, and two labels going from his mouth. On that going towards his right hand are the following words, *Verbum quod egredietur de me non revertetur ad me vacuum, sed faciet quæcunque volui.**—Esa. lv. His left hand points to the king (Henry VIII), who is represented kneeling at some distance bare-headed, and his hands lifted up towards Heaven, with his crown on the ground before him, and a label going out of his mouth. On the label which comes from the Almighty is this text, *Inveni virum juxta cor meum, qui faciet omnes voluntates meas.*†—Ac. xiii. 22. To which answers that proceeding from the king, *Lucerna pedibus meis verbum tuum.*‡—Psal. cxix. 105. Underneath the Almighty is the king again represented sitting in his throne, with his arms before him at his feet. On his right hand stand two bishops bare-headed, and their mitres on the ground, in token, as it should seem, of their acknowledgment of the king's supremacy. The king gives to him a book shut, with these words on the cover, *Verbvm Dei,* and these words on a label going out of his mouth, *Hec precipe et doce.*§—Tit. ii. 15. The bishop receives it bending his right knee. On the king's left hand stand several of the lords temporal, to one of which he delivers a book clasped with *Verbvm Dei* on the cover of it, and the following words on one label, *A me constitutum est et decretum, ut in universo imperio et regno meo tremiscant et paveant deum viventem.*‖—Daniel vi. 26: and on another

* "The word that is departed from me shall not return to me again as a vain word, but it shall effect that which I purposed."

† "I have found a man after my own heart, who shall fulfil all my will."

‡ "Thy word is a lanthorn unto my feet."

§ "These things teach and exhort."

‖ "It is my ordinance and decree that in my kingdom, and whole empire all men tremble at and fear the living God."

label this text, *Quod iustum est iudicate, ita parvum audietis ut magnum.**—Deut. i. 17. The nobleman receives the book bending his left knee. Underneath the bishops stands Archbishop Cranmer, with his mitre on his head, and habited in his rochet or stole over it. Before him is one kneeling with a shaven crown, and habited in a surplice, to whom the archbishop delivers a book clasped, with the words *Verbvm Dei* on the cover of it, and saying to him these words as they are in a label coming out of his mouth, *Pascite quod in vobis est gregem Christi.*†—1 Pet. v. 2. Behind the archbishop seems to stand one of his chaplains, and at his feet are placed his coat of arms within a garland, the same with those before his life by Archbishop Parker, only here distinguished by the crescent as the arms of a younger family. Under the lords temporal stands Lord Cromwel, the king's vicegerent, as appears by his arms placed at his feet, as the archbishop's are: his lordship is represented standing with his cap on, and a roll of paper in one hand, and in the other a book clasped, with *Verbvm Dei* on the cover of it, which he delivers to a nobleman, who receives it of him bare-headed, with these words on a label going out of his mouth, *Diverte a malo et fac bonum, inquire pacem et sequere eam.*‡—Psalm xxxiv. 14. At the bottom, on the right hand, is represented a priest with his square cap on in a pulpit, preaching to a pretty large auditory of persons of all ranks and qualities, orders, sexes and ages, men, women, children, nobles, priests, soldiers, tradesmen, and countrymen; who are represented some standing and others sitting on forms, and expressing themselves very thankful. Out of the preacher's mouth goes a label with these words, "*Obsecro igitur primum omnium fieri obsecrationes, orationes, postulationes, gratiarum actiones pro omnibus hominibus, pro regibus, &c.*§—1 Tim. ii. 1, 2. On the right side of the pulpit are these words, *Vivat Rex,* and in labels coming from the people's and children's mouths, *Vivat Rex, God save the King,* to express the great and universal joy and satisfac-

* "Pronounce whatsoever is just, so may ye hear the small as well as the great."

† "Feed the flock of Christ which is among you."

‡ "Depart from evil and do good; seek peace and pursue it."

§ "I exhort, therefore, that, first of all, supplications, prayers, intercessions, and giving of thanks be made for all men, for kings, &c."

tion which all the king's subjects, high and low, great and little, had, and their thankfulness to the king, for his granting them this privilege of having and reading the Holy Scriptures in their mother-tongue. On the left side are represented prisoners looking out of the prison grates, and partaking of this great and common joy."

Grafton was in so much favour, that we find in Rymer's Fœdera a patent dated Jan. 28, 1543, as follows:—

"*Pro divino servicio, de libris imprimendis.*

"Henry the Eighth, by the grace of God, &c. to all prynters of bookes within this our realme, and to all other our officers, ministers, and subjectes, theis our letters patents hering or seing, greting. We do you to understand, that wherein tymes past it hath been usually accustomed, that theis bookes of divine service, that is to sey, the masse booke, the graill, the antyphoner, the himptuall, the portans, and the prymer, both in Latyn and in Englyshe of Sarum use, for the province of Canterbury, have been prynted by strangiers in other, and strange countreys, partely to the great losse and hynderance of our subjectes, who both have the sufficient arte, feate, and treade of Printing, and by imprinting suche bookes myght profitably, and to thuse of the commonwelthe, be set on worke, and partely to the setting forthe the byshopp of Rome's usurped auctoritie, and keping the same in contynuall memorye, contrary to the decrees, statutes, and lawes of this our realme; and considering also the greate expences and provision of so necessary workes as theis arre, and yet the same not a little chargeable, and to thintent that hereafter we woll have theym more perfectly, and faithfully, and truly done, to the high honour of Almighty God, and safeguard and quyetnes of our subjects, which dayly doo, and further may incurre no small parill and daunger of our injunctions, proclamacions, and lawes, by reason of not oblitterating the seid name, and usurped power and authoritie of the byshopp of Rome as aforesaid: We of our grace especiall have graunted, and geven privilege to our welbiloved subjects, Richard Grafton and Edward Whitchurch, citezeins of London, that they and their assignes, and noon other person nor persons, saving the said Richard and Edward, and their assignes only, have libertie to prynte the bookes abovesaid, and

every sorte and sortes of theym, whiche either at this present daye arre in use, or hereafter shall be auctorised for Sarum use, within any parte of oure realmes or domynions, and that no manor of person shall prynte the seid bookes, nor any other booke or bookes, that our seid subjects at their proper expences shall prynte within the space of seven yeres next ensuing the printing of every suche booke or bookes, so printed by our seid subjects, and either of theym; or of their assignes or any of theym. Wherfore we woll and commaunde you, that ye noon of you presume to prynte any of the bookes, that our seid subjects shall have prynted as aforesaid, during the seid tyme of this our privilege, upon payne to forfeyte to our use all suche bookes, wherssoever the same shall be founde, emprynted contrary to the tenour and fourme of this our privilege. In witness whereof, &c. witness our self at Westminster the twenty-eight daye of Januarye."

In 1545 he printed King Henry VIIIth's Primer, both in Latin and English, with red and black ink, for which he had a patent which is inserted at the end of the Primer, expressed in much the same words as the preceding one of 1543.

In the first year of Edward VI. Grafton was favoured with a special patent granted to him for the sole printing of all the statute books. This is the first patent that is taken notice of by that diligent and accurate antiquary, Sir William Dugdale.

There is a patent, dated Dec. 18, 1548, to R. Grafton and E. Whitchurch, printers, by which they are authorised to take up and provide, for one year, printers, compositors, &c. together with papers, ink, presses, &c. at reasonable rates and prices.

In 1549, the 3rd year of Edward VI. a proclamation was issued, printed by Grafton, for abolishing and putting away divers books and images, which passed into an act of parliament, in the following words:—

"Whereas the King's most excellent majesty hath of late set forth, and established, by authority of parliament, an uniform, quiet, and godly order of common and open prayer, in a book intituled, "The Book of Common Prayer and Administration of the Sacraments, and other Rites and Ceremonies after the Church of England, to be used and observed in the said Church of England, agreeable to the order of the Primitive Church, much more comfortable unto his loving subjects than other diversity of

service, as heretofore of long time hath been used, being in the said book ordained, nothing to be read but the very pure word of God, or which is evidently grounded thereon, &c." It then proceeds to order the abolishing of all other religious books, as they tend to superstition and idolatry; and commands all persons to deface and destroy images of all kinds that were erected for religious worship, under a penalty for any to prevent the same. In this proclamation are the following clauses: "Provided always, that this act, or any thing therein contained, shall not extend to any image, or picture, set, or engraven upon any tomb in any church, chapel, or church-yard, only for a monument of any dead person, which hath not been commonly reputed and taken for a saint." It was also enacted, that the people might still keep the primers set forth by the late King Henry the eighth, provided they erased the sentences of invocation, and names of popish saints. This act was repealed by Queen Mary, but King James I re-established it.

In 1553, on the death of King Edward VI, Grafton, in consequence of being king's printer, was employed to print the proclamation, by which Lady Jane Grey was declared successor to the crown, by virtue of the measures that had been concerted by her father-in-law, the Duke of Northumberland; but on Queen Mary's accession to the throne, Grafton, though he had done no more than discharged the duty of his office, lost a debt of 300*l.* which was owing to him from the crown at the time of King Edward's death, and was immediately deprived of his patent, and John Cawood put in his room. The reason of this deprivation, as it is given in the patent granted to his successor, was, his having printed the proclamation for declaring Lady Jane Grey Queen of England. This, it seems, was considered as nothing less than high treason in those days. Besides the loss of his debt and patent, he was prosecuted and imprisoned six weeks in the Fleet prison. Whether this prosecution was carried on against him on account of the above-mentioned proclamation, or for printing the Bible in English, is not so evident. His reformation principles, of which he could not give greater proof than by encouraging the English Bible, might excite the disgust against him; though the affair of the proclamation was made the handle, as the more plausible and political pretence. During his confinement, or at

least while he was out of business, he employed himself in writing. The subject upon which he fell was the History of England; an abridgment of the chronicles of which he put together; but it was not printed till 1562.

1540.—Anthony Malert had a patent for printing a folio Bible. —*Ante*, p. 120.

Reynold Wolfe was king's printer in Latin, Greek, and Hebrew. —*Ante*, p. 121.

1553 to 1557.—John Day had licenses to print works on various subjects.—*Ante*, p. 122.

William Seres was privileged to print all psalters, primers, and prayer-books. Mr. Strype speaks of him thus, "Sir William Cecil, principal secretary of state to King Edward, procured for him, being his servant, a licence to print all manner of private prayers, called primers, as should be agreeable to the common-prayer established in the court of parliament; and that none else should print the same. Provided, that before the said Seres, or his assigns, did begin to print off the same, he or they should present a copy thereof, to be allowed by the lords of the privy-council, or by the lord chancellor for the time being, or by the king's four ordinary chaplains, or two of them. And when the same was and should be from time to time printed, that the said lords, and other of the said privy-council, or by the lord chancellor, or with the advice of the said occupation, the reasonable price thereof be set, as well in sheets as bound, in like manner as was expressed at the end of The Book of Common Prayer." Mr. Strype says, "Seres had a privilege for the printing of all psalters, primers, and prayer-books; that this privilege was taken away by Queen Mary, but restored by Queen Elizabeth, by the means of Lord Cecil, with the addition of the grant to him and to his son during the life of the longest liver; this gave occasion to a dispute, for Seres, the father, in the latter part of his life, not being well able to follow his business, assigned his privilege, with all his presses, letter, &c. to Henry Denham, for an annuity. Denham engaged seven persons out of the Company of Stationers to join with him in the same; but some others of the Company of Stationers at the same time endeavouring to invade on the patentee's rights, presented a petition to the privy-council, wherein they pretended that in justice it stood with the best

policy of this realm, that the printing of all good and useful books should be at liberty for every man to do, without granting or allowing of any privilege by the prince to the contrary. And they said it was against law, and that the queen ought not to grant any such. Seres upon this, in a petition to the lord-treasurer, urged against these men that privileges for special books were ever granted by the prince; for that for the most part in all ancient books we read these words, *Cum privilegio ad imprimendum solum;* and that many records might be found of the same, whereby it appeared, that the prince or magistrate had ever care to commit the printing of all good books, especially of the best sort, to some special men well known and tried for their fidelity, skill, and ability: examples whereof might be shewed as well in England as other christian countries. And that the reason hereof was, that printing of itself was most dangerous and pernicious if it were not straitened and restrained by politic order of the prince or magistrate. This affair at last was made up by a friendly agreement. The expedient was this, that those that had privileges were to grant some allowances unto the Company of Stationers, for the expenses attending of this dispute, and the future maintenance of their poor. Thus Seres, who had the privilege of printing primers and psalters, and all books of private prayer, yielded the best part of the said privilege for the relief of the whole Company, out of that privilege reserving only the little primer and psalter. Several other Stationers in like manner granted many of their copies for the same purpose.

1560.—Richard Jugge and John Cawood, printers to Queen Elizabeth.—*Ante*, p. 124.

John Cawood had a patent referred to in page 127.

"The Queen, to all whom it may concern, sends greeting. Know ye, that of our special favour, &c. for the good, true, and acceptable service of our beloved John Cawood, printer, already performed, by these presents for us, our heirs, and successors, we do give and grant to the said John Cawood, the office of our printer of all and singular our statute books, acts, proclamations, injunctions, and other volumes and things, under what name or title soever, either already or hereafter to be published in the English language. Which office is now vacant, and in our disposal, forasmuch as R. Grafton, who lately had and exercised that office, hath forfeited it by printing a certain proclamation, setting

forth that one Jane, wife of Guilford Dudley, was Queen of England, which Jane is indeed a false traitor, and not Queen of England; and by these presents we constitute the said John Cawood our printer in the premises, to have and exercise, by himself, or sufficient deputies, the said office, with all the profits and advantages any way appertaining thereunto, during his natural life, in as ample manner as R. Grafton or any others have, or ought to have, enjoyed it heretofore.

"Wherefore we prohibit all our subjects, whatsoever and wheresoever, and all other persons whatsoever, to print, or cause to be printed, either by themselves or others, in our dominions, or out of them, any books or volumes, the printing of which is granted to the aforesaid John Cawood; and that none cause to be reprinted, import, or cause to be imported, or sell within our kingdom, any books printed in our dominions by the said John Cawood, or hereafter to be printed by him in foreign parts, under the penalty of forfeiting all such books, &c.

"And we do grant power unto John Cawood, and his assigns, to seize and confiscate to our use all such books, &c. as he or they shall find so prohibited, without let or hindrance; and to enjoy the sum of 6*l.* 13*s.* 4*d.* per annum during life, to be received out of our treasury. And whereas our dear brother, Edward VI &c. did grant unto Reginald Wolf the office of printer and bookseller in Latin, Greek, and Hebrew; we, out of our abundant grace, &c. for ourselves, heirs, and successors, do give and grant to the said John Cawood the said office, with the fee of 16*s.* 8*d.* per annum, and all other profits and advantages thereto belonging, to be entered upon immediately after the death of the aforesaid Reginald, and to be enjoyed by him during his natural life, in as full and ample manner as the said Reginald now has, and exercises that office, &c. Given at Westminster, 29 Dec. 1553."

In 1555 the following proclamation against wicked and seditious books was printed by him, and issued by order of Philip and Mary.

"Whereas dyvers bookes, filled both with heresye, sedition, and treason, have of late, and be dayly brought into this realme, out of forreigne countrys, and places beyond the seas, and some also covertly printed within this realme, and cast abroade in sundry partes thereof, whereby not only God is dishonoured, but also an encouragement geven to disobey lawful princes and governours;

the king and queen's majesties, for redress thereof, doth by this thyr present proclaymation declare and publysh to all theyr subjectes, that whosoever shall, after the proclaymation hereof, be found to have any of the sayd wicked and seditious bookes, or fyndyng them, do not forthwith burne the same, without showing or readyng the same to any other person, shall in that case bee reputed and taken for a rebell, and shall without delaye be executed for that offence, according to thorder of martiall law. Geven at oure manor of sainct Jameses, the sixt day of June."

The same year, viz. 1555, he printed a proclamation in the following words:—

"Whereas by the statute made in the secunde yeare of Kinge Henrye IV. concerning the repressynge of heresies, there is ordeyned and provyded, of greate punyshment, not only for the authors, makers, and wryters of bookes, conteynynge wycked doctryne, and erronious and heretycall opynions, contrarye to the catholyque ffaythe, and determynatyon of the holye churche, and lykewyse for the fautours and supporters, but also for suche as shall have, or keape any suche bookes or wrytings, and not make delyvery of them to the ordenarye of the dyoces, or his mynisters, withyn a certeyne tyme lymytted in the sayd statute, as by the sayde statute more att large it dothe appeare; whych acte, or statute, being by aucthorytie of parlyament of late revyved, was also openly proclaymed to thynte the subjects of the realme upon suche proclamatyon, should the rather eschue the daunger and penaltie of the sayde statute, and as yet nevertheless in moste partes of the realme, the same ys neglected and lytle regarded:

"The Kynge and Quene, our soveraigne lorde and lady, therefore moste entirely and earnestly tenderynge the preservation and saulsty, as well of the soules as of the bodyes, landes, and substaunce, of all their good lovynge subjectes, and others, and myndynge to root oute and extinguishe all false doctryne and heresyes, and other occasyons of scismes, dyvisyons, and sects, that come by the same heresies, and false doctryne, straightly charge and command that no person or persons of what estate, degree, or condytion soever he or they be, from henceforthe presume to bringe, or convey, or cause to be broughte and conveyed into this realme anye bookes, wrytinges, or workes hereafter mentyoned: that ys to saye, any booke, or bookes, wrytinges, or

workes, made or sett fourthe by, or in the name of Martyn Luther; or any booke, or bookes, wrytinges, or workes, made or sett forthe by, or in the name of Oecolampadyus, Sivinglius, John Calvyn, Pomerane, John Alasco, Bullynger, Bucer, Malancthon, Barnardinus, Ochinus, Erasmus Sarcerius, Peter Martyr, Hughe Latymer, Roberte Barnes, otherwyse called Freere Barnes, John Bale, otherwyse called Freere Bale, Justus Jonas, John Hoper, Miles Coverdale, William Tyndale, Thomas Cranmer, late Archebyshop of Canterburye, Wylliam Turner, Theodore Basyll, otherwyse called Thomas Beacon, John Frythe Roye, and the book commonly called Halles Cronycles; or any of them in the Latyn tonge, Duche tonge, English tonge, Italyan tonge, or French tonge; or any other lyke booke, paper, wrytinge, or wourke, made, prynted, or sett forth by any other persone, or persons, conteynynge false doctryne, contrarye, and agaynste the Catholyque faythe, and the doctryne of the Catholyque churche.

"And also, that no persone, or persons, presume to wryte, prynte, utter, sell, reade, or keape, or cause to be wrytten, prynted, uttered, rede, or kepte, any of the sayde bookes, papers, workes, or wrytings, or any booke, or bookes, wrytten or prynted in the Latten or Englyshe tonge, concernynge the common service and ministratyon, sett forthe in Englyshe, to be used in the churches of this realme, in the tyme of Kinge Edward the VI, commonly called the communyon booke, or books of common service, and orderynge of mynisters, otherwyse called, the booke sette forthe by the aucthorytie of parlyament for common prayer, and admynistration of the sacraments, to be used in the mother tonge, wythin the churche of Englande, but shall wythin the space of fyftene dayes next after the publicatyon of this proclamatyon, brynge, or delyver, or cause the sayde bookes, wrytings, and works, and everye of them remayneinge in their custodies, and kepinge, to be broughte, and delyvered to thordinarye of the dioces, where suche books, works, or wrytings be, or remayne, to his chauncelloure, or commyssaryes, withoute fraude, colour, or deceipte, at the sayde ordinaries will and disposition to be burnte, or otherwyse to be usyde, or orderyd by the said ordenaries, as by the cannons and spirituall lawes it is in that case lymyted, and apoynted, upon payne that everye offendor contrary to this proclamatyon, shall incurre the daunger and penalties conteyned

in the sayde statute, and as they will avoide their majestyes highe indignatyon and displeasure, and further awnswer att thire uttermost periles.

"And their majestyes by this proclamatyon geveth full power and aucthorytie to all byshops, and ordynaryes, and all justices of peace, mayors, sheriffes, baylyffes of cyties, and townes corporate, and other hedde offycers within this realme, and the domynions theirof, and expressleye commaundeth and willethe the same, and everye of them, that they, and everye of theim, within their several lymyts and jurisdictions, shall, in the defaulte and neglygence of the said subjects, after the sayd fyftene dayes expyred, enquyer, and serche oute the sayde bookes, wrytings, and works, and for this purpose enter into the howse, or howses, clossetts, and secrete places of every person of whatsoever degre, beinge negligente in this behalf, and suspected to kepe anye suche booke, wrytinge, or workes, contrarye to this proclamation.

"And that the saide justices, mayors, sheryffs, baylyffs, and other hede officers above specified, and every of them, within their sayde lymytes and jurysdictions, fyndinge anye of the sayde subjectes negligent and faultie in this behalfe, shall commytte everye suche offendour to warde, theire to remayne withoute bayle, or maynepryse, tyll the same offendour, or offendours, have receavid suche punyshment as the said statute dothe lymitte and appoynte in this behalfe. Geven under our signes manuell, at oure honour of Hampton Courte, the xiiith daye of June, the fyrste and seconde yeres of our reignes."

We find in Dugd. Orig. Jurid. p. 59 and 60, the following licences: "A special licence to Richard Tathille, or Tottel, citizen, stationer, and printer, of London, for him and his assigns, to imprint, for the space of seven years next ensuing the date hereof, all manner of books of the temporal law, called the common law; so as the copies be allowed, and adjudged meet to be printed by one of the justices of the law, or two serjeants, or three apprentices of the law, whereof the one to be a reader in court. And that none other shall imprint any book, which the said Richard Totell shall first take and imprint, during the said term, upon pain of forfeiture of all such books." T. R. apud Westm. 12 April, 7 Edward VI. p. 3. "A licence to Richard Tottle, stationer, of London, to imprint, or cause to be imprinted, for the

space of seven years next ensuing, all manner of books which touch or concern the common law, whether already imprinted, or not." T. R. apud Westm. 1 Maii, Pat. 2, and 3 Phil. and Mary, p. 1. "Licence to Richard Tottell, citizen, printer, and stationer, of London, to print all manner of books, touching the common laws of England, for his life." T. R. 12 Jan. Pat. 1 Eliz. p. 4.

There was a patent ready drawn for Queen Elizabeth's signing for seven years, privileging Richard Tothill, stationer, to imprint all manner of books or tables whatsoever, which touched or concerned cosmography, or any part thereof; as geography, or topography, writ in the English tongue, or translated out of any other language into English, of whatsoever countries they treated, and whosoever was the author. But whether this was ever actually signed or not, is uncertain.

1566.—In the year 1566, John Audeley printed the following ordinances decreed by the court of Star-chamber, high commission court, for the reformation of divers disorders in printing and uttering of books, dated from the Star-chamber, June 29, 1566.

I. "That no person should print, or cause to be printed, or bring, or procure to be brought into the realm printed, any book against the force and meaning of any ordinance, prohibition, or commandment, contained, or to be contained, in any the statutes or laws of this realm, or in any injunctions, letters, patents, or ordinances, past or set forth, or to be past or set forth, by the Queen's grant, commission, or authority.

II. "That whosoever should offend against the said ordinances, should forfeit all such books and copies; and from thenceforth should never use, or exercise, or take benefit by any using or exercising, the feat of printing; and to sustain three months imprisonment without bail or mainprize.

III. "That no person should sell, or put to sale, bind, stitch, or sow, any such books, or copies, upon pain to forfeit all such books and copies, and for every book 20*s*.

IV. "That all books so forfeited should be brought into Stationers-hall, and there one moiety of the money forfeited to be reserved to the Queen's use, and the other moiety to be delivered to him, or them, that should first seize the books, or make complaint thereof to the warden of the said company; and all the books so to be forfeited, to be destroyed, or made waste paper.

V. "That it should be lawful for the wardens of the company for the time being, or any two of the said company, thereto deputed by the said wardens, as well in any ports, or other suspected places, to open and view all packs, dryfats, maunds, and other things, wherein books or paper shall be contained, brought into this realm, and make search in all workhouses, shops, warehouses, and other places of printers, booksellers, and such as bring books into the realm to be sold, or where they have reasonable cause of suspicion. And all books to be found against the said ordinances, to seize and carry to the hall, to the uses above-said; and to bring the persons offending before the Queen's commissioners in causes ecclesiastical.

VI. "Every stationer, printer, bookseller, merchant, using any trade of book-printing, binding, selling, or bringing into the realm, should, before the commissioners, or before any other persons thereto to be assigned by the Queen's privy-council, enter into several recognizances of reasonable sums of money to her majesty, with sureties, or without, as to the commissioners should be thought expedient, that he should truly observe all the said ordinances, well and truly yield and pay all such forfeitures, and in no point be resisting, but in all things aiding to the said wardens, and their deputies, for the true execution of the premises." And this was thus subscribed: "Upon the consideration before expressed, and upon the motion of the commissioners, we of the privy-council have agreed this to be observed, and kept, upon the pains therein contained.—At the Star-chamber, the 29 June, anno 1566, and the eighth year of the Queen's majesties reign.

"N. Bacon, C. S.	Winchester,	R. Leicester,
E. Clynton,	E. Rogers,	F. Knollys."
Ambr. Cave,	W. Cecyl,	

To which the commissioners for ecclesiastical causes also underwrit. "We underwrit think these ordinances meet and necessary to be decreed, and observed:

"Matthue Cantuar.	Ambr. Cave,	Tho. Yale,
Edm. London.	David Lewis,	Rob. Weston,
		T. Huycke."

1567.—Henry Denham had a privilege granted him for printing the New Testament in the Welsh tongue.

The 27th of March, 1563, a bill was brought into the House of Commons, that the Bible, and the divine service, may be translated into the Welsh, or British tongue, and used in the churches of Wales. See Journals of the House of Commons at that time. Which bill expresses that,

"The Bishops of Hereford, Saint David's, Asaph, Bangor, and Landaff, and their successors, shall take such order amongst themselves for the soule's health of the flocks committed to their charge, within Wales, that the whole Bible, containing the New Testament, and the Old, with the book of Common Prayer, and administration of the sacraments, as is now used within the realm in English, to be truly and exactly translated into the British or Welch tongue. 2. And that the same so translated being by them viewed, perused, and allowed, be imprinted to such number at the least, that one of every sort may be had for every cathedral, collegiate, and parish church, and chappel of ease, in such places, and countrys, of every the said diocesses, where that tongue is commonly spoken or used, before the first day of March, anno Domini 1566. 3. That from that day forth, the whole divine service shall be used and said by the curates and ministers, throughout all the said diocesses, where the Welch tongue is commonly used, in the said British, or Welch tongue, in such manner and form as is now used in the English tongue, and differing nothing in any order or form from the English book. 4. For the which books so imprinted, the parishioners of every the said parishes shall pay the one-half or moiety, and the said parson and vicar of every of the said parishes (where both be) or else the one of them, where there is but one, shall pay the other half or moiety. 5. The prices of which books shall be appointed and rated by the said bishops, and their successors, or by three of them at the least. 6. The which things, if the said bishops, or their successors, neglect to do, then every one of them shall forfeit to the Queen's majesty, her heirs, and successors, the sum of 40*l.* to be levied of their goods and chattels.

II. "And one book containing the Bible, and one other book of Common Prayer, in the English tongue, shall be brought, and had in every church throughout Wales, in which the Bible, and book of Common Prayer in Welch is to be had by force of this act (if there be none already) before the first day of March, one thousand

five hundred sixty-six. 2. And the same books to remain in such convenient places within the said churches, that such as understand them, may resort at all convenient times to read and peruse the same; and also such as do not understand the said language, may, by conferring both tongues together, the sooner attain to the knowledge of the English tongue; any thing in this act to the contrary notwithstanding."

1569 to 1600.—Thomas Tallis and William Birde had a patent for printing music, of which the following is a copy:

"Elizabeth by the grace of God, Quene of Englande, Fraunce, and Ireland, defender of the faith, &c. to all printers, bokesellers, and other officers, ministers, and subjects, greting. Know ye, that we for the especiall effection, and good will, that we haue and bare to the science of musick, and for the aduancement thereof, by our letters patents, dated the XXII of January, in the XVII yere of our raigne, have graunted full priviledge and licence vnto our welbeloued servants, Thomas Tallis, and William Birde, gent. of our chappell, and to the ouerlyuer of them, and to the assignes of them, and of the suruiuer of them, for XXI yeares next ensuing, to imprint any, and so many, as they will, of set songe, or songes in partes, either in English, Latine, French, Italian, or other tongues, that may serve for musicke, either in churche or chamber, or otherwise to be either plaid, or soonge. And that they may rule, and cause to be ruled, by impression, any paper to serue for printing, or pricking of any songe or songes, and may sell and vtter any printed bokes, or papers of any songe, or songes, or any bookes, or quieres of such ruled paper imprinted. Also we straightly by the same forbid all printers, booksellers, subjects, and strangers, other then as is aforesaid, to do any the premisses, or to bring, or cause to be brought, of any forren realmes into any our dominions, any songe, or songes, made and printed in any forren countrie, to sell, or put to sale, uppon paine of our displeasure; and the offender in any of the premisses, for euery time to forfet to us, our heires, and successors, fortie shillings, and to the said Thomas Tallis, and William Birde, or to their assignes, and to the assignees of the suruiuer of them, all, and euery the said bookes, papers, songe, or songes. We have also by the same willed and commaunded our printers, maisters, and wardens of the misterie of Stationers, to assist the said Thomas Tallis, and William

Birde, and their assignees, for the dewe executing of the premisses."

Patents were granted by Queen Elizabeth, for printing cards, almanacks, songs, and various other works, mentioned in Luckombe, as follows:

Towards the close of Queen Elizabeth's reign a patent was granted to Thomas Morley for printing musick; but it being much the same with Talis and Birde's before mentioned, we forbear reciting it. Patents were also granted to John Spilman, to make cards; to Richard Watkins and James Roberts, to print almanacks; to Richard Wrighte, to print the History of Cornelius Tacitus; to John Norden, to print Speculum Britanniæ; to Sir Henry Singer, touching the printing of School-books; to Thomas Morley, to print songs, in three parts; to Thomas Wight and Bonham Norton, to print law books; Edward Darcy, for cards, &c.

In the debates concerning monopolies, when that of cards was mentioned, Sir Walter Rawleigh blushed. Upon reading of the list of patents, Mr. Hackwell, of Lincoln's-Inn, stood up, and asked, "Is not bread there?" "Bread!" says one, "Bread!" says another. "This request seems strange," says one of the members. "No, not in the least," says Mr. Hackwell, "for, if not speedily prevented, a patent for bread will be procured before the next session of parliament."

LAW PRINTERS.

1577.—Nicasius Yetsweirt had a patent, Nov. 18, 1577, 20th of Elizabeth, to print for thirty years all manner of books concerning the common laws of this realm. *Antè*, p. 135.

1595.—Charles, son of the foregoing, had, in the 37th of Elizabeth, a like patent to print all books concerning the laws, for thirty years from the date of the grant; which, however, he enjoyed but one year, as he died in the beginning of the year 1595. *Antè*, p. 135.

1599.—A special licence gave Thomas Wright, or Wight, the exclusive right of printing all law books for thirty years. T. R. apud Westm. 10 Martii, pat. 41st Eliz. p. 4. Dugdale's Orig. p. 61. [*Ames*, p. 307.]

ORIGIN OF THE EXISTING PATENT OF KING'S PRINTER.

CHRISTOPHER BARKER, and ROBERT his SON, had a Patent granted to them by Queen Elizabeth, in consideration of the father's great improvement in the art of printing. This appearing to be the origin of the present patent, I shall give it verbatim, as in Ames, and conclude the article with a copy of the patent now held by the King's printer.

Pat. 31, Eliz. Ps. 9.

De con. ad offic. pro Roberto Barker.

Regina omnibus ad quos &c. salutem: cum nos, per literas patentes, magno sigillo nostro Angliae sigillatas, gerentes datum apud castrum nostrum de Windesor, vicesimo octavo die Septembris, anno regni nostri decimo nono, dederimus et concesserimus dilecto subdito nostro Christoforo Barker, de civitate London. impressori, officium impressoris nostri omnium et singulorum statutorum, librorum, libellorum, actuum parliamenti, proclamationum, injunctionum, ac bibliorum, et novorum testamentorum, quorumcunque, in linguâ Anglicanâ alicujus translationis, cum notis, aut sine notis, ante tunc impressorum, aut tunc postea per mandatum nostrum imprimendorum; necnon omnium aliorum librorum quorumcunque, quos nos pro Dei servitio in Templis hujus regni nostri Angliae uti mandaveramus, aut tum postea uti mandaremus, ac aliorum voluminum, ac rerum quarumcunque, quocunque, nomine, termino. titulo, aut sensu, seu quibuscunque nominibus, terminis, titulis, aut sensibus nominarentur, vocarentur, vel censerentur, aut eorum aliquis nominaretur, vocaretur, censeretur, aut tunc postea nominarentur, vocarentur, vel censerentur, seu per parliamentum regni nostri predictum in Anglicanâ linguâ, vel in Anglicanâ, vel aliâ linguâ quâcunque, mixta, tum editorum, impressorum, vel excussorum, aut tum postea edendorum, excudendorum, et ad impressionem ponendorum; exceptis solummodo rudimentis grammaticae institutionis Latine lingue: ac ipsum Christoferum Barker, impressorem nostrum omnium et singulorum premissorum fecerimus, ordinaverimus, et constituerimus, per predictas litteras patentes, habendum, gaudendum, occupandum, et exercendum, officium predictum prefato Christofero Barker, per se, vel sufficientem deputatum suum, sive deputatos suos sufficientes, durante vita suâ naturali, unà cum omnibus proficiis, commoditatibus, advantagiis, preheminenciis, et privilegiis, eidem officio quoquomodo spectantibus sive pertinentibus prout, per predictas literas patentes (inter alia) in eisdem contenta plenius liquet et apparet: cumque etiam prefatus Christoferus Barker, suâ propriâ industriâ, cura, et sumptibus, scientiam imprimendi in hoc regno nostro Anglie typis, characteribus, aliisque nonnullis instru-

mentis, ad officium predictum impressoris nostri pertinentibus, multo quam ante hac retroactis temporibus copiosius adauxerit, atq; ornatius expresserit. Sciatis igitur, quod nos, de gratia nostrâ speciali, ac ex certâ scientiâ, et mero motu nostris, dedimus, et concessimus, ac per presentes pro nobis, heredibus, et successoribus nostris, damus, et concedimus, dilecto subdito nostro, Roberto Barker, filio predicti Christoferi Barker, officium impressoris nostri omnium et singulorum statutorum, librorum, libellorum, actuum parliamenti, proclamationum, injunctionum ac bibliorum, et novorum testamentorum, quorumcunque, in linguâ Anglicanâ alicujus translationis, cum notis, aut sine notis, antehac impressorum, aut imposterum, per mandatum, privilegium, sive authoritatem, nostri, heredum, aut successorum nostrorum, imprimendorum; necnon omnium aliorum librorum quorumcunque, quos nos, aut successores nostri, pro Dei servitio in templis hujus regni nostri Anglie uti mandavimus, aut imposterum uti mandaverimus, ac aliorum voluminum, ac rerum quarumcunque, quocunque nomine, termino, titulo, aut sensu, seu quibuscunque nominibus, terminis, titulis, aut sensibus, nominentur, vocentur, vel censeantur, aut eorum aliquod nominetur, vocetur, censeatur, aut imposterum vocabuntur, vel censebuntur, seu per parliamentum regni nostri predicti in Anglicana lingua, vel in Anglicanâ, et aliâ linguâ quâcunq; mixta, jam editorum, impressorum, vel excussorum, aut imposterum edendorum, excudendorum, et ad impressionem ponendorum; exceptis solummodo rudimentis grammaticae institutionis Latine lingue. Ac ipsum Robertum Barker, impressorem nostrum omnium et singulorum praemissorum facimus, ordinamus, et constituimus, per presentes, habendum, gaudendum, occupandum, et exercendum, officium predictum, unà cum omnibus proficuis, commoditatibus, advantagiis, preheminentiis, et privilegiis, eidem officio quoquomodo spectantibus sive pertinentibus, prefato Roberto Barker, et assignatis suis, per se vel per sufficientem deputatum suum, seu deputatos suos sufficientes, immediate post mortem, sive decessum dicti Christoferi Barker, pro et durante vitâ naturali prefati Roberti Barker. Et ulterius de uberiori gratia nostra speciali, certâ scientia, et mero motu nostris, damus, et concedimus, prefato Roberto Barker, durante vitâ suâ naturali, authoritatem, privilegium, et facultatem imprimendi omnia, et omnimoda abreviamenta omnium et singulorum statutorum, et actuum parliamentorum, quorumcunq; antehac editorum, et imposterum edendorum Ac ulterius de uberiori gratia nostra, ex certâ scientia, et mero motu nostris, volumus, et concedimus, quod si prefatus Robertus Barker in vitâ predicti Christoferi decesserit, quod tunc prefatus Robertus Barker, executores, administratores, et assignati sui, per se, vel per sufficientem deputatum suum, sive deputatos suos sufficientes, habeant, teneant, et gaudeant predictum officium impressoris nostri, heredum, et successorum nostrorum, omnium et singulorum predictorum librorum, actuum parliamentorum, bibliorum, et ceterorum praemissorum, cum omnibus commoditatibus feodis, et privilegiis predictis, pro et durante termino quatuor annorum proxime et immediatè sequentium post mortem prefati Christoferi Barker. Quare prohibemus, vetamus, et inhibemus, omnibus et

singulis subditis nostris quibuscunque, ubivis gentium et locorum agentibus, et ceteris aliis quibuscunque, ne illi, vel eorum aliquis, per se, vel per alium, vel alios, durante vita prefati Roberti Barker, et predictis quatuor annis, imprimat, seu imprimi faciat, vel faciant, infra, vel extra dominia nostra quecunque, aliquod volumen, librum, aut opus, aliqua volumina, libros, aut opera quecunque, de quibus impressio per presentes per nos conceditur prefato Roberto Barker; ac quod nullos alios libros, volumina, aut opus quodcunque, in vernaculâ aut Anglicanâ linguâ, aut Anglicanâ cum aliis, ut prefertur, infra regna, seu dominia nostra, per prefatum Christoferum Barker impressa, aut que in futurum erunt per ipsum Christopherum, aut per prefatum Robertum Barker, aut eorum aliquem deputatum, seu assignatos suos, seu eorum alicujus, impressa in partibus transmarinis, aut in partibus forinececis imprimi faciat, vel faciant, nec ea, seu eorum aliquod, importet, vel importent, seu importari faciat, vel faciant, aut ea, vel eorum aliquod vendat, vel vendant, sub penâ forisfacturae decem solidorum legalis monetae Anglie pro quolibet tali libro, volumine, vel opere, sic imprimendo vel vendendo, ac confiscationis et amissionis talium librorum, voluminum, operum, materiarum, et rerum quarumcunque, et eorum cujuslibet; que quidem libri, volumina, materie, et res quecunque sic impressa, vel durante vitâ prefati Roberti Barker, et predicto termino quatuor annorum, contra tenorem presentium imprimenda, aut infra hoc regnum nostrum sive dominia quecunque importanda, et sicut premittitur, forisfacienda et confiscanda, nos concessimus, ac authoritatem et potestatem per presentes, pro nobis, heredibus, et successoribus nostris, concedimus prefato Roberto Barker, executoribus, deputatis, et assignatis suis, apprehendendum, capiendum, seisiendum, et ad opus nostrum arrestandum et confiscandum sine impedimento, interruptione, dilatione, contradictione, seu perturbatione quacunque; vetantes insuper, et firmiter prohibentes, virtute et vigore presentium, nequis alius, quocunq; modo, colore, vel pretextu, librum, vel libros, aut opera quecunq; per dictum Robertum Barker, executores, deputatos, seu assignatos suos imprimenda de novo imprimere, vel alibi impressa vendere, aut emere presumat, aut audeat, quovis modo. Et insuper de ampliori gratia nostra concessimus, et licentiam dedimus, ac per presentes, pro nobis, heredibus, et successoribus nostris, concedimus, et licentiam damus, prefato Roberto Barker, executoribus, deputatis, et assignatis suis, quod ipsi, vel eorum aliquis, de tempore in tempus, durante vita prefati Roberti Barker, et predicto termino quatuor annorum, operarios de arte et misterio impressoris capere, apprehendere, et conducere possit, vel possint, ad operandum in arte predictâ ad appunctuationem, sive assignationem prefati Roberti Barker, executorum, deputatorum, vel assignatorum suorum, tali tempore, et talibus temporibus durantibus, quo vel quibus idem Robertus, executores, deputati, vel assignati sui, hujusmodi operariis egebit, vel egebunt. Concessimus etiam, ac per presentes, pro nobis, heredibus, et successoribus nostris, concedimus dicto Roberto Barker, executoribus, et assignatis suis pro exercitio

officii predicti feodum, sive annuitatem, sex librarum tresdecim solidorum et quatuor denariorum, habendum, et annuatim percipiendum predictum feodum, sive annuitatem, sex librarum tresdecim solidorum et quatuor denariorum prefato Roberto Barker, executoribus, et assignatis suis, ad festa sancti Michaelis et Pasche, equis proportionibus solvendum, durante vitâ prefati Roberti Barker, et durante termino predictorum quatuor annorum, de thesauro nostro, ad receptam scacarii nostri Westmonasterii per manus thesaurarii, et camerariorum nostrorum, pro tempore existente; mandantes etiam, et per presentes firmiter injungendo precipientes, omnibus et singulis majoribus, vicecomitibus, Ballivis, constabulariis, et aliis officiariis, ministris, et subditis nostris quibuscunq; quod prefato Roberto, executoribus, et assignatis suis, in executione officii predicti, ac factione omnium et singulorum in hiis literis nostris patentibus specificatorum agendorum de tempore in tempus, quando necessè fuerit, sint intendentes, attendentes pariter, et auxiliantes in omnibus, prout decet. Eo quod expressâ mentio, &c.

In cujus rei, &c. teste regina apud Westmonasterium octavo die Augusti.

King James I, May 10, 1602, in the first year of his reign, granted the same patent to Christopher, son of the said Robert, to hold the same after the death of his father, with a proviso, that if Christopher should die before his father, then his heirs, &c. should have it for four years after his father Robert's death.

Robert Barker of Southley, or Southlee, in the county of Bucks, esq. married two wives, Rachael daughter of Richard Day, Bishop of Winchester, by whom he had several children, and Ann, relict of Nicholas Cage of London. Others, besides his sons, were concerned with him in the business of printing. July 19, 1603, a special licence was granted to Robert for printing all the Statutes during his life. Mr. William Ball, in a treatise on printing, 1651, says, Robert Barker had paid for amending or correcting, the translation of the Bible, the considerable sum of 3,500*l.* &c. therefore his heirs had the right of printing it. This great family had their changes in fortune, for this same Robert Barker lay in prison above ten years, as appears from a certificate, in these words: "These are to certify whom it may concern, that Robert Barker, esq., was committed a prisoner to the custody of the Marshal of the King's-bench, the 27th of November, 1635, and died in the prison of the King's-bench, the 10th of January, 1645."

King James I, in the fourteenth year of his reign, anno 1616,

on the 11th of February, granted the same to Robert, son of the said Robert, for thirty years, to commence from the death of Robert the father.

King Charles I, July 20, 1627, in the third of his reign, having notice that the several interests of the Barkers were assigned over to BONHAM NORTON and JOHN BILL, confirmed the said assignment to NORTON and BILL.

King Charles I, Sept. 26, 1635, in the eleventh year of his reign, granted the same to Charles and Matthew Barker, two other sons of Robert the father, after the expiration of the four years to Christopher's heirs, and the thirty years to Robert their brother.

Robert, to whom Queen Elizabeth granted the office for life, 1589, died in the Queen's-bench, January 10, 1645; so that Christopher's four years ended the 10th of January, 1689.

Robert the son's, began January 10, 1649, and expired January 10, 1679.

King Charles II, December 24, 1675, in the 27th of his reign, grants the same to THOMAS NEWCOMB and HENRY HILLS, for thirty years,* to commence after the expiration of the respective terms granted to the Barkers.†

Charles and Matthew Barker's, began January 10, 1679, and expired January 10, 1709.

Thomas Newcomb and Henry Hills, began January 10, 1709, and expired in 1739.

Note.—When King Charles II granted the office of printer, &c. to Thomas Newcomb and Henry Hills, there were then of the respective terms, formerly granted to the Barkers, thirty-four years unexpired.

Note.—Also, that the same patent was assigned over by the executors of Thomas Newcomb and Henry Hills unto John BASKETT and others. There have been contests about the meaning of this patent since the Union, as Mrs. Anderson's case, and that between John Baskett, esq. and Henry Parsons, &c. printed 1720.

* Mr. Nichols says, thirty-four years.

† I have a small Bible (between Nonpareil and Pearl), "Printed by *John Bill, Christopher Barker, Tho. Newcomb, and Henry Hills*, Printers to the King's Most Excellent Majesty, 1678.—CUM PRIVILEGIO."—*H.*

The next granted patent was to Mr. Tooke and Mr. Barber, as by the following petition:

"To the Queen's most Excellent Majesty.

"The humble Petition of Benjamin Tooke and John Barber, citizens and stationers of London,

"Sheweth,

"That his late majesty King Charles the second, did by his letters patent, under the great seal of England, bearing date at Westminster, the 24th day of December, in the 24th year of his reign, grant unto Thomas Newcomb and Henry Hills, of the city of London, the office of his Majesty's Printer, for the printing of all Bibles, New Testaments, Books of Common Prayer of all Translations, with notes, or without, Statutes, Abridgements of the same, Proclamations and Injunctions; to hold to them, their executors and assigns, by themselves, or their sufficient deputy or deputies, for thirty years, from the determination of the several and respective estates and interests therein then formerly granted to Robert Barker the younger, and Charles and Matthew Barker. —And whereas the said office hath been usually from time to time granted by the crown for the term of thirty years, in reversion as aforesaid,

"Your petitioners most humbly pray your majesty would be graciously pleased to grant unto them the said offices and premises, to hold to them, their executors, and assigns, for thirty years, from the determination of the several and respective estates and interests now in being,

"And your petitioners, as in duty bound, shall ever pray, &c.

"It appears that this petition was received and granted the 13th day of October 1713, the twelfth year of queen Anne.

"Per breve de privato sigillo. COCKS."

JOHN BASKETT, Esq., some years ago, bought out Tooke's moiety, and also that of alderman Barber: soon after the fire, which burnt the printing house, he had a new patent granted him by king George II. for 60 years,* with the privilege to serve the parliament

* This patent was to commence after the expiration of the term then existing to Mr. Baskett, viz. in January, 1739, and with its addition of 30 years, would expire in 1769.

with stationers' wares, added to it. Thirty years of this grant was then conveyed, for a valuable consideration,* to Charles Eyre, esq. of Clapham, and his heirs.

In the year 1769, Mr. Baskett's term of the patent expired, and the consigned reversion for 30 years, being the sole property of Charles Eyre, esq. he took possession of the same, and appointed William Strahan, sen. esq. his printer, who, in 1770, purchased a share of the patent. He died in 1785, in the 71st year of his age; and was succeeded by his third son, Andrew; now one of the joint patentees, as printer to his majesty; having also the patent of law printer. *See* p. 184.

The following is a summary account of the rise and progress of the patent of king's printer, as before given in detail.

1589 In 1589, the grant from queen Elizabeth to Christopher and Robert Barker, for life.

1602 In 1602, the grant from James I, to Christopher, son of Robert, last named, which provided, that if he died before his father, his heirs, &c., should possess the right for four years after the death of his father: and it so happened that Christopher did die before his father.

1645 In 1645, the father, Robert, died, therefore four years
4 remained due as provided to Christopher's heirs.
1649 In 1616, James I granted the reversionary right of
30 patent to Robert, another son, for thirty years, which
1679 expired in 1679.

In 1627, Charles I confirmed an assignment of the patent from the Barkers to Norton and Bill: and

In 1635, granted to Charles and Matthew Barker, two other sons of Robert, another thirty years patent, to commence after the expiration of the four years' right, vested
30 in the heirs of Christopher before-mentioned, and the thirty years granted by James I, to the before-mentioned
1709 Robert Barker, which continued it down to 1709.

In 1675, Charles II granted to Newcomb and Hills,
30 thirty years in addition to the grants conferred on the
1739 Barkers. These patentees appear to have survived the grant but a short time, as it was assigned over by their executors to Mr. John Baskett.

* £.10,000.—Lemoine.

1739 In 1713, Queen Anne granted another patent to Tooke
30 and Barber, for thirty years, "which," as was explained at the time by a public advertisement, "was to commence at the expiration of the term then existing to Baskett, namely, 1739."* But this reversionary interest was bought up by Baskett, who afterwards obtained a further renewal for sixty† years, thirty of which, were conveyed for the sum of 10,000*l.*‡ to Charles Eyre, esq. This
1769 comes down to 1769, when Mr. Eyre came into posses-
30 sion. Mr. Strahan in the following year purchased a share in the patent, which expired in 1799, when a new patent for the usual term, was granted to Mr. Eyre
1799 and the present Mr. Strahan, including also a new partner
30 in the person of JOHN REEVES, esq., who thus became
1829 a sort of *lay-brother* of our profession, by means of Mr. Pitt, as a reward for some political services which he had rendered to the cause of that statesman. Mr. Reeves embarked pretty largely in his new profession of Prayer-book and Bible-printing, until his interest in the Patent was purchased by Mr. Strahan.

This mode of requiting political services in the late reign, gave rise to some parliamentary inquiries, which produced the following:—

COPY OF THE PATENT.

GEORGE the Third by the grace of God of Great Britain France and Ireland King Defender of the Faith and so forth, TO all to whom these Presents shall come Greeting: WHEREAS Our Royal Ancestor George the

---

* See "Evening Post," Oct. 17th, 1713, N. i, 73.

† This appears to be an inaccuracy which has escaped both Lemoine and Nichols, since a further renewal of sixty years, would have continued the grant until 1829: and in addition to this reason, the copy of the patent of 1799, it will be seen, recites Mr. Baskett's, as for thirty years. It is, therefore, probable that the passage should have stood thus: Mr. Baskett having purchased Tooke and Barber's term of thirty years, obtained a further renewal of thirty years, which gave him a total of sixty years, the last thirty of which, were conveyed, &c. &c.

‡ Lemoine, 77.

First late King of Great Britain, &c. by his Letters Patent under his Great Seal of Great Britain, bearing date at Westminster the 15th day of December in the second year of his Reign, for himself his Heirs and Successors, did give and grant to his beloved and trusty John Baskett, of his City of London, Bookseller, his executors and assigns, the Office of Printer to the said late King His Heirs and Successors, of all and singular Statutes, Books, small Books, Acts of Parliament, Proclamations and Injunctions, and Bibles and New Testaments whatsoever, in the English tongue or in any other tongue whatsoever of any translation, with notes or without notes; and also of all Books of Common-Prayer and Administration of the Sacraments and other Rites and Ceremonies of the Church of England, in any volumes whatsoever theretofore printed by the Royal Typographers for the time being, or thereafter to be printed by the command privilege or authority of Him His Heirs or Successors; and also of all other Books whatsoever which He had commanded or should command or His Heirs or Successors should command to be used for the service of God in the Churches of that part of His Realm of Great Britain called England; and of all other books volumes and things whatsoever, by whatsoever name term title or meaning, or by whatsoever names terms titles or meanings they were named called or distinguished, or any of them was named called or distinguished, or thereafter should be named called or distinguished thentofore printed by the Royal Typographers for the time being, or then already by the Parliament of Great Britain in the English tongue or in any other mixed tongue, published printed or worked off, or thereafter to be published worked off or put to the press, by the command privilege or authority of Him His Heirs or Successors (except only the Rudiments of the Grammatical Institutions of the Latin Tongue): To have enjoy occupy and exercise the said Office, together with all profits, commodities, and advantages, pre-eminences and privileges to the same Office in anywise belonging or appertaining to the said John Baskett his executors and assigns, by him or themselves, or by his or their sufficient deputy or deputies, for the term of 30 Years, to commence and be computed from and immediately after the expiration or other determination of the several and respective estates and interests in the said Office before that time granted by Our Royal Predecessor Ann Queen of Great Britain, by Her Letters Patent made under her Seal of Great Britain, bearing date at Westminster the 13th day of October, in the 12th year of her Reign to her beloved subjects Benjamin Tooke and John Barber, of Her City of London, Booksellers, and each of them their and each of their executors and assigns, to have enjoy exercise and occupy the said Office to the said Benjamin Tooke and John Barber for the term of 30 Years, to commence and be computed from and immediately after the expiration or other sooner determination of the several and respective estates and interests before that time granted by Our late Royal Predecessor Charles the Second, late King of England Scotland France and Ireland, by his Letters Patent made under his Great Seal of England bearing date at Westminster the 24th day of December in the 27th year of

his reign, to his beloved subjects Thomas Newcomb and Henry Hills; to have enjoy exercise and occupy the said Office to the said Thomas Newcomb and Henry Hills for the term of 30 Years, which last mentioned term of 30 Years begun at and from the 10th day of January 1709: as by the said Letters Patent made to the said John Baskett, amongst other things in the same contained, relation being thereunto had, will more plainly and at large appear: NOW know ye, That We, for divers good causes and considerations Us at this time specially moving, of Our special grace certain knowledge and mere motion, Have given and granted, and by these Presents for Us Our Heirs and Successors, Do give and grant unto Our beloved and trusty John Reeves of Cecil-street within the Liberty of the Savoy parcel of Our Duchy of Lancaster, George Eyre of Lyndhurst in Our County of Hants, and Andrew Strahan of Our City of London, Stationer, and each of them their and each of their executors administrators and assigns, the Office of Printer to Us Our Heirs and Successors, of all and singular Statutes, Books, small Books, Acts of Parliament, Proclamations and Injunctions, Bibles and New Testaments whatsoever, in the English tongue or in any other tongue whatsoever of any translation, with notes or without notes; and also of all Books of Common-Prayer and Administration of the Sacraments and other Rites and Ceremonies of the Church of England, in any volumes whatsoever heretofore printed by the Royal Typographers for the time being, or hereafter to be printed by the command privilege or authority of Us Our Heirs or Successors; and also of all other books whatsoever which We have commanded or hereafter shall command, or Our Heirs or Successors shall command to be used for the service of God in the Churches of that part of Our Realm of Great Britain called England, and of all other books volumes and things whatsoever, by whatsoever name term title or meaning, or by whatsoever names terms titles or meanings they are named called or distinguished, or any of them is named called or distinguished, or hereafter shall be named called or distinguished, heretofore printed by the Royal Typographers for the time being, or by the Parliament of Great Britain, in the English tongue or in any other mixed tongue, already published printed or worked off, or hereafter to be published worked off or put to the press, by the command privilege or authority of Us Our Heirs or Successors; (except only the Rudiments of the Grammatical Institutions of the Latin tongue): And them the said John Reeves, George Eyre, and Andrew Strahan, and their Executors and Assigns, printer to Us Our Heirs and Successors, of all and singular the premises, We make ordain and constitute by these Presents, to have enjoy occupy and exercise the said Office, together with all profits commodities and advantages, pre-eminences and privileges to the said Office in anywise belonging or appertaining, to the said John Reeves, George Eyre, and Andrew Strahan, their Executors and Assigns, by themselves or by their sufficient Deputy or Deputies, for and during the term of Thirty Years, to commence and be computed from and immediately after the expiration or other determination of the Estate and interest in the said Office before granted to the said John Baskett his

Executors and Assigns, or when or as soon as the said Office shall be vacant and shall happen by any means whatsoever to be in Our hands, in the same manner as if such Grant had not been made: AND further, We of Our more abundant grace certain knowledge and mere motion Do give and grant to the said John Reeves, George Eyre, and Andrew Strahan, and each of them, their and each of their Executors Administrators and Assigns, during the same term of 30 Years last above mentioned, authority privilege and faculty of printing all and all manner of Abridgments of all Statutes and Acts of Parliament whatsoever published or hereafter to be published: AND in order that no one do presume to impede or in anywise disturb the said John Reeves, George Eyre, and Andrew Strahan, or either of them, their or either of their Executors Administrators or Assigns, during the aforesaid term to them granted in the said Office, in rightfully and duly exercising their said Office, or to do any thing whatsoever, whereby the profits which may accrue to the said John Reeves, George Eyre, and Andrew Strahan, or any of them, their or either of their Executors Administrators or Assigns, by reason of the said Office, may be diminished, We prohibit and enjoin and by these presents for Us Our Heirs and Successors forbid all and singular the subjects of Us Our Heirs and Successors, whatsoever and wheresoever abiding, and all others whatsoever, that neither they nor any of them, neither by themselves or by any other or others during the said last-mentioned term of 30 Years, print or cause to be printed within that part of our Realm of Great Britain called England, any volume book or work, or any volumes books or works, the printing of which We by these presents have granted to the said John Reeves, George Eyre, and Andrew Strahan, their Executors and Assigns, nor any Bibles or New Testaments in the English tongue of any translation, with notes or without notes, nor any Books of Common Prayer and Administration of the Sacraments and other Rites and Ceremonies of the Church of England, nor any other books, by Us Our Heirs or Successors for the service of God in the Churches of Us Our Heirs or Successors commanded or to be commanded to be used, nor import or cause to be imported, sell or cause to be sold any books volumes or works whatsoever, in the English tongue or in the English mixed with any other tongue whatsoever, printed in parts beyond the seas, or in foreign parts out of that part of Our Realm of Great Britain called England, being such as have been or may be lawfully printed by the said John Reeves, George Eyre, and Andrew Strahan, or either of them, their or either of their Administrators Executors or Assigns, or their or either of their Deputy or Deputies by virtue of these Presents, under the penalties and forfeitures by the Laws and Statutes of this realm in that behalf made and provided, or that may be hereafter provided; Forbidding also, and by these presents for Us Our Heirs and Successors firmly prohibiting and enjoining, that no other shall in any manner or by any colour or pretext whatsoever presume or dare to reprint in any manner whatsoever, or purchase, elsewhere printed, any book or books or any work or works whatsoever, that may be printed by the said John Reeves, George Eyre, and Andrew Strahan, or either

of them, their or either of their Executors Administrators or Assigns by virtue of these Presents: AND further, of Our more abundant grace We have granted and given licence and by these Presents We do for Us our Heirs and Successors grant and give licence to the said John Reeves, George Eyre, and Andrew Strahan, them and each of them, and to their and each of their Executors Administrators and Assigns, that they or any of them during the aforesaid term to them above granted, may take retain and hire Workmen in the art and mystery of Printing, to work in such art or mystery at the appointment and by the assignment of the said John Reeves, George Eyre, and Andrew Strahan, their Executors or Assigns, for such time or times during which the said John Reeves, George Eyre, and Andrew Strahan, their Executors or Assigns or any of them, shall want such Workmen, We have also given and granted, and by these Presents for Us Our Heirs and Successors, do give and grant to the said John Reeves, George Eyre, and Andrew Strahan, and each of them, their and each of their Executors Administrators and Assigns, for exercising the said Office, a Fee or Annuity of 6*l.* 13*s.* 4*d.* of lawful Money of Great Britain, by the year, To have and annually receive the said Fee or Annuity of 6*l.* 13*s.* 4*d.* to the said John Reeves, George Eyre, and Andrew Strahan, their Executors Administrators and Assigns, at the Feasts of Easter and St. Michael the Archangel, to be paid in equal portions during the said term of 30 Years above by these Presents granted, from the Treasury of Us Our Heirs and Successors, at the Receipt of our Exchequer at Westminster, by the hands of the Commissioners of our Treasury, or the Treasurer and Chamberlain of Us, Our Heirs and Successors for the time being; Commanding and by these Presents for Us Our Heirs and Successors firmly enjoining and ordering all and singular Mayors Sheriffs Bailiffs Constables Officers Ministers and Subjects whatsoever, of Us Our Heirs and Successors, that they be, from time to time when there shall be occasion, assisting attendant and aiding, as they ought, to the said John Reeves, George Eyre, and Andrew Strahan, their Executors and Assigns, in the execution of the aforesaid Office, and in the doing of all and singular the things specified in these Our Letters Patent to be done: PROVIDED always, and Our Will and Pleasure nevertheless is, that these our Letters Patent are and shall be deemed to be made and granted, and to be valid and effectual only upon condition that the said John Reeves, George Eyre, and Andrew Strahan, their Executors and Assigns, from time to time and at all times during the term hereinbefore granted, and when and as often as they or any of them shall be required by Our Lord High Treasurer; or the Commissioners of Our Treasury for the time being, or at his or their instance, or by his or their Order, to print for and supply to Us Our Heirs or Successors, or in any manner whatsoever for or on Our behalf or for Our service, any of the articles matters or things which by virtue of these Our Letters Patent, and the Office hereby granted, they or any of them are authorized to print; and for or in respect of the printing and supplying of which, they can or may be entitled to require demand or receive any price or payment whatsoever, over

and above the said Fee hereby granted, shall and do accordingly print for and supply to Us Our Heirs and Successors, or in such manner for or on our behalf or for Our service, all and every such articles matters and things respectively, at and for such prices and rates of payment for the same respectively, as to Our said Treasurer or Lords of our Treasury for the time being shall appear to be just and reasonable. LASTLY, We will, and by these Presents for Us Our Heirs and Successors, do grant unto the said John Reeves, George Eyre, and Andrew Strahan, that these Our Letters Patent, or the Inrollment of the same, shall be good firm valid and effectual in the Law, notwithstanding the not rightly or fully reciting the before recited Letters Patent, or the not naming or the not rightly naming or mentioning the Office and Premises aforesaid, or any of them, and notwithstanding any other omission, imperfection defect thing cause or matter whatsoever, to the contrary thereof in any wise notwithstanding. IN WITNESS whereof We have caused these Our Letters to be made Patent. WITNESS Ourself at Westminster, the 8th day of July, in the 39th year of Our Reign.

By Writ of Privy Seal, WILMOT.

From this document the dates are clearly recited to be—

Newcomb and Hills began		1709
Their term	30	
Term of Tooke and Barber	30	
Term of Baskett	30	
Term of Reeves, Eyre, and Strahan .	30	
	—	120
Present Patent to expire in . .		1829

In the earliest period of the introduction of the art into England, printing-houses were set up in several cities and towns where they had any considerable religious house. Thus we see, besides Westminster, that the Abbey of St. Alban's had printing there very soon; and several others, such as Tavistock, Worcester, Canterbury, Ipswich, &c. However, as we have mentioned before, that the art was practised very early at Oxford, we shall mention that place first.

OXFORD.

Theodoric Rood, a native of Cologne, printed here in 1480

where he continued till 1485, but how much longer we cannot learn. It appears that he had a partner called

Thomas Hunte, an Englishman; but notwithstanding this might be so, the care and diligence of curious and inquisitive persons have preserved but four books printed by these two printers, and one of those was not known till 1735, unless we admit Hunte to be the printer of the three anonymous books in 1468 and 1479.

From these we are obliged to descend to the year 1506, when Pynson, or Wynkyn de Worde, printed for them till 1518.

John Scolar printed here, in 1518, who was succeeded by

Charles Kyrfeth, a Dutchman, who resided here but a short time, in whose name we have only one book, in 1519. Mr. Anthony Wood, in his History of the Antiquities of Oxford, printed 1674, says Theodoric Rood was succeeded by Scolar, and he by

Peter Trevers; who, in 1527, removed to Southwark.

In Rymer, Vol. xv, p. 628, is the following Grant, by Queen Elizabeth, to Thomas Cooper, "Clerke of Oxforde," for Twelve Years, for the sole Printing of his Latin Dictionary.

"Elizabeth, by the grace of God, Quene of England, Fraunce, and Ireland, defender of the faith, &c. To all and singuler printers of bookes, bookesellers, statyoners, as well within this our realm of England, as in other our dominions, and all other our officers, ministers, and subjects, greeting. We let you to wit, that in consideracion, that our loving subjecte, THOMAS COOPER, of Oxforde, hathe diverse and sundrye tymes heretofore traveled in the correcting, and augmenting of the English Dictionarie (commonly called, Bibliotheca Eliotae), and now of late, as well to his further paynes and studie, as also to his great costes, and charges, of a zeale to further good letters, and the knowledge of the Laten tong, in these our realms and dominions, hath altered and broughte the same to a more perfecte forme, in following the notable worke called, Thesaurus Linguæ Latinæ, then at any time heretofore it hath been used, or set forth; we therefore, of our grace especial and mere mocion, haue lycenced and priviliged, and by these presents do graunte, and give lycence and priviledge, unto the said Thomas Cooper, and his assignes onlye, to prynte,

and set fourthe to sale, the said Englysshe dictionary (before tyme named Bibliotheca Eliotae) and now in this last edicion entituled, Thesaurus utriusque linguae Latinae et Britannicae. Commaunding and straytelye prohibiting, that neither you, nor any of you, nor any person, or persons whatsoever, other then the said Thomas Cooper, and his only assignes, shall, durying the space of twelve yeres next ensuyng the printing of the booke or worke, printe, or cause to be printed, or put to sale the said work, or booke abovenamed, eyther by the coppye heretofore ymprinted, or hereafter to be printed, by the said Thomas Cooper, or his assignes, or by any other copye, translation, alteration, addicion, or abridgement, or by other whatsoever tolerable way, name, or title, the said book, or work, shall, or may after be called, printed, or set fourthe, uppon payne and forfeiture, and confiscacion of all and every the same booke, and bookes, worke, and workes, so by you, or any of you, imprinted, or set fourthe to sale, contrary to the tenour of these presents, and further incurrying our highe displeasure and indignation for your attempting of the contrary at your extreme parill. Willying, therefore, and strayghtly charging and commanding all our officers, ministers, and subjects, as they tender our favour, and will avoyde our high indignacion and displeasure, that they, and every of them, do ayde and assiste the said Thomas Cooper, and his assignes, in the due accomplishment and execution of these our licence and priviledge; any statute ,lawe, or ordenaunce heretofore to the contrary notwithstanding. In witnes whereof, &c. Witness ourself at Westminster, the XII daye of Marche. Per breve de privato sigillo."

After this time we have observed no other printer resident at Oxford for the space of 60 years, for which chasm there is no reason assigned. In 1585 a new printing press was erected, at the expense of the Earl of Leicester, chancellor of that University. The first book produced from it was published by John Case, fellow of St. John's College.

Joseph Barnes was appointed University Printer in 1585, and continued till 1617. From that time John Litchfield and James Short were printers to the University till 1624, but the books printed by them have not always both their names.

John Litchfield and William Turner were University Printers to 1635; William Turner and Leonard Litchfield in 1658; Henry Hall in 1648; and William Hall in 1662, who continued till 1676.

Mr. Wood, in his Athenæ, mentions Samuel Clark, a master of arts, as elected May 14, 1658, Architypographus, who was succeeded by Martin Bold in 1669.

Books printed è Theatro Sheldoniano from 1671, have usually no printer's name to them. Henry Crutterden printed a book at Oxford in 1688, wherein he calls himself one of his majesty's printers. From this period the office of Architypographus, or printer to the University, was attached to the superior Bedelship of Law, and was holden by the successive Bedels of that faculty, till the year 1715; when Hearne, the Oxford antiquary, was elected to the office. At that time, in consequence of some ill-will conceived against the new Bedel (and his political principles), by the then Vice-Chancellor, and other leading persons, he was not permitted to exercise that part of his office which belonged to the Architypographus; and he complains very bitterly, that a common printer was thrust into the place in defiance of the statute, which enjoins that "one well skilled in Greek, Latin, and philological learning," should enjoy it. From that time it seems that the offices of superior Bedel of Law and Architypographus, have never been united. From the year 1758, the management of the University Press has been entrusted to certain delegates nominated by the Vice-Chancellor and the Proctors, and approved by Convocation; who engage from time to time, proper persons to conduct the establishment.

The present superintendants are Messrs. Samuel and John Collingwood (father and son). Mr. C. was invested with the office in 1792.

CAMBRIDGE.

In this University they received the Art of Printing at a very early period of its introduction into England, but it is uncertain who were the persons that brought it thither.

John Siberch settled at Cambridge in 1521, and styled himself the first Greek printer in England. As Erasmus was then resident here, it may fairly be presumed that he superintended the printing of his own works.

In July, 1534, King Henry VIII. granted to this University for ever, under his great seal, authority to name, and to have three stationers or printers of books, "aliens, or strangers, not born

within, or under his obedience, and they to be reputed and taken as denizens."

Notwithstanding this favourable licence for the encouragement of the press, no books appear to have been printed here between 1522 and 1584, a space of 62 years, when Thomas Thomas, M.A. and formerly of King's College, took up, and followed the business of printing; and was, besides being printer to the University, author of the dictionary which bears the name of Thomas Thomas. He died in 1588.

John Legate, citizen and stationer of London, was printer to this University in 1589. In 1606 he used the impression of the *Alma Mater Cantabrigia*, and round it *Hinc lucem et pocula sacra*, which has frequently been used since. He died in 1626, when a licence was granted to John Legate, his son, to print Thomas's Dictionary, &c. In 1608 Chantrell Legge printed for the University, and was succeeded, in 1627, by Thomas Buck and Roger Daniell to 1650, and Buck alone to 1653. In 1665 he was succeeded by John Field; 1675, John Hayes; 1688, Edward Hall. After the Revolution, Cornelius Crownfield, a Dutchman, held the office. In 1740, Mr. Joseph Bentham. In 1763 he resigned in favour of Mr. John Archdeacon. In 1794 it was in the joint names of Archdeacon and Burgess. In 1794, Burgess alone. In 1802, Mr. Richard Watts, upon whose resignation, in 1809, Mr. Smith was elected, who still (1824) retains the office.

ST. ALBAN'S.—Who practised at St. Alban's we have not been able to learn; but by the productions from his press we find he was a schoolmaster. He printed there so early as 1480, and produced several books between that year and 1486, from which time there appears a chasm till 1536; when John Hertford endeavoured to revive the trade, but not finding it to answer his expectation, removed, in 1538, to Aldersgate-street, London.

YORK.—Printing at this city was of early date. In 1509 Hugo Goes, supposed to be the son of an ingenious printer at Antwerp, erected a printing-house here, where he continued some years, and then removed to

BEVERLEY, where he lived in the Hye-gate, and used for a device an H and a Goose.* He afterwards removed to London.

* Almost as ridiculous a conundrum on his name as that of Gerard Dewes. —See p. 131, note †.

TAVISTOCK.—The art was exercised here so early as 1525, by Thomas Rychard, a monk of the monastery; where, among other productions, was printed the Stannary Laws.

SOUTHWARK.—Peter Treveris, a foreigner, erected a press at the sign of The Widows, in 1514, and continued till 1532. He printed several books for William Rastell, John Reynes, R. Copland, and others, in the City of London. James Nicholson printed here in 1526: in 1537 he was living in St. Thomas's Hospital; and had a licence in 1538 from King Henry VIII, for printing the New Testament in Latin and English. John Redman, about 1540, printed here for Robert Redman. Christopher Truthall, supposed to be a feigned name, for in Queen Mary's reign he printed several books against the Papists, to which it would have been dangerous to put a real name, and there is no further trace of him.

CANTERBURY.—In 1550 John Mychell lived in St. Paul's parish, and soon after in St. Austin's, where he printed a Chronicle, "*Cum priv. ad imprimendum solum.*"

IPSWICH had a printing-house erected in Cardinal Wolsey's time, 1538, by John Oswen, who made use of "*Cum priv. ad imprimendum solum*" to his first production. John Overton, 1548. Anthony Scoloker, from London, in 1548.

GREENWICH had a printer in 1554, but he did not insert his name to his productions.

WORCESTER.—In the Rolls Chapel is a licence granted by Edward VI. to John Oswen, of the City of Worcester, and his assigns, to print and reprint, &c. every kind of book or books set forth by his majesty, concerning the service to be used in Churches, Administration of the Sacraments, and Instruction of his subjects of the Principality of Wales, and Marshes thereunto belonging, &c. for seven years, prohibiting all other persons whatsoever from printing the same. He continued to print under this licence till 1553, 7 Edward VI, when he had a new appointment of printer for the Principality of Wales, and the Marshes thereunto belonging.

NORWICH.—In 1565 many emigrants from the Low Countries came over here, and settled in Norwich City, by some of whom printing was introduced, of whom we have only the name of Anthony Solmpne, who was so well encouraged as to have his

freedom presented to him; he is noticed, as a printer at Norwich, in Leland's Appendix to his Collectanea, Part II. Vol. VI. p. 41.

MOULSEY, near Kingston, Surrey, was chosen by the puritanical party, as a secluded situation, for a private press, during the period when such numbers of scurrilous, snarling, ridiculous pamphlets on both sides of the question concerning ecclesiastical discipline, and religious rites and ceremonies, were dispersed throughout the nation; but, as Ames says, it might well have many *errata*, for it was an *erratic* press: from Moulsey it made a quick movement to Fawsley, in Northamptonshire; thence to Norton, and afterwards to Coventry; from Coventry to Woolston, in Warwickshire, and from thence to Manchester, where it was discovered by Henry, Earl of Derby, while printing "More Work for the Cooper." This probably put an end to its perambulations. It was often visited by the messengers of the High Commissioners, who seized the offensive books;* and Sir Richard Knightly and Sir —— Wigston, who were the owners of the concern, with the printer and disperser, were deeply fined in the Star Chamber.†

SCOTLAND.

THE great extent to which printing is carried on, and the high degree of perfection it has attained in the city of Edinburgh and other parts of Scotland, would render it unpardonable if, as all works treating on the art have hitherto done, this treatise were to omit to duly notice those particulars which are most interesting with regard to the early progress of Printing in our Sister Nation,

* In an examination which took place about the year 1804, of a great mass of books and papers which had been found in the attics and lofts of the House of Commons, many of these kind of pamphlets were brought to light, from which a selection was made of all that might anyways tend to elucidate the history of the country, by the then Speaker (Abbot), now Lord Colchester, under the various heads of State Papers, Records, Parliamentary Speeches, &c. forming between eighty and ninety invaluable volumes, which are preserved in the Speaker's Gallery; the remainder were again consigned to their old receptacles.

† Strype, Life of Archbishop Whitgift, p. 314.—Also, Camb. Annals of Queen Elizabeth.

which has produced a Ruddiman, the Foulis, a Ballantyne, and a Ruthven: to whom must be added, although they perhaps ought rather to have preceded, those eminent Founders of Type, Wilson and Son, of Glasgow, and Millar, of Edinburgh.

"The late ingenious James Watson, who, with Freebairne, was patented by Queen Anne, for printing in Scotland, and was afterwards one of the printers to George I. published, in 1713, a short History of the Art of Printing; from the preface of which some light is thrown upon the introduction of the Art into Scotland; and from this information it appears, that it was introduced from the Low Countries, by the priests who fled thither from the persecutions at home. However, time has destroyed, or rather the immoderate zeal of the reformers has done that which antiquaries lament, for no book of the Catholic persuasion is known to exist, printed in Scotland before the year 1500.

In 1509 is found a Breviary of the Church of Aberdeen, printed at Edinburgh that year, thirty-five years after the introduction of this art by Caxton. Mr. Professor Ruddiman discovered a second part of this valuable relic, printed in 1510, at the same place.

Mr. Robertson, Keeper of the Records in Scotland, has lately discovered a patent of King James IV, which renders it certain that a printing-press was first established at Edinburgh during the year 1507, thirty years after Caxton had brought it into England.

Mr. Ames, who is very particular in his work, as well as his editor, Mr. Herbert, accounts for a chasm of thirty years from the last date to the next work printed at Edinburgh; when it is known the Scotch acts of parliament, made in the reign of James V, were printed. Mackenzie, Vol. II, fol. p. 596, mentions the Chronicles of Scotland by Boëthius, as printed at Edinburgh, by Thomas Davidson, in the Fryere's Winde, in 1536; and in 1540 were printed there the whole works of Sir David Lindsay. By a letter from Mr. Thomas Ruddiman to Mr. Ames, it appears that the above Davidson had a parliament licence, and not a patent, to print acts of parliament at this time, which was towards the end of the year 1541.

In the Harleian Catalogue, Vol. I, No. 8375, appears a book of the Life and Death of Cardinal Beaton, bishop of St. Andrew's,

dated in 1546; and Scotland's Complaint is said by Watson to have been printed in 1540, and another edition in 1548. Those who consult the above catalogue in the first volume will find many books of Scotch affairs with early dates, not within the plan of this short history to record.—See Herbert's Ames, 4to. Vol. III, p. 1477; see also Dr. Mackenzie's Writers of the Scotch Nation, Vol. III, p. 42 and 46.

It appears from the *Phœnix Britannicus* that Thomas Vautrollier made assignments of copy-right to Thomas Nelson, in 1585; when the first Scotch edition of Calvin's Institutes was printed by W. Lawne, minister. This is an abridgment of the original work in 8vo. containing 398 pages. In 1589 was printed in 4to. Tusser's 500 Points of Good Husbandry; and in 1597, the Demonologie of King James VI, 4to.; another edition in the same size appeared in 1600.

In Thomas Ruddiman Scotland produced an eminent scholar, and, eventually, one of its most learned printers. He was born in 1674, and received the best education which the care of his parents could procure him, which was in a charity school at Boyndie. He, for years, acted as a private tutor and public school-master in several parts of Scotland. His first promotion to public notice was under the patronage of Dr. Pitcairne, who obtained for him the appointment of under librarian to the Advocate's library, founded by Sir George Mackenzie, a place of such small emolument that it altogether brought him in scarcely 12*l.* sterling per annum. His talents as a scholar brought him to the notice of Mr. Freebairne, a respectable bookseller, who engaged him to correct Sir Robert Sibbald's Introduction to the History of the Romans in Britain, a Latin work of great merit. In 1707 his necessities compelled him to act as an itinerant auctioneer; and the same year he published his *Volusenus*, which proved that his public calling did not prevent him from following the path of the Belles Lettres. Of this first edition only 200 copies were printed; it is dedicated to his patron, Dr. Pitcairne, and the costs of the impression amounted to 5*l.* 10*s.*; the copies were sold for 1*s.* each.

In 1709 he published Johnston's Psalms and Canticles in Latin, with notes; and was greatly assistant in producing Freebairne's edition of the works of Gawin Douglas, bishop of Dunkeld; for which the bookseller paid him 8*l.* 6*s.* 8*d.* sterling.

His reputation as a literary character was so high, that he received the most flattering encouragement; and the last auction he conducted was that of the library of his friend, Dr. Pitcairne, which was at last, mostly disposed of to Peter the Great of Russia, in 1713.

In 1714 he published his Rudiments of the Latin Tongue; and soon after edited the works of Buchanan, for which he received 40*l.* His *Gram. Institutiones Latinæ*, came out in 1725; and he was soon after engaged to conduct a newspaper, which was called the Caledonian Mercury; and all this while he continued as under librarian, until the death of Mr. Spottiswoode, whom he succeeded; and was himself succeeded in that office by Mr. Goodall, the defender of Queen Mary.

In 1739 he finished Anderson's Diplomata, to which he wrote the preface. At this time he was in the printing business, in partnership with his brother Walter, who had been regularly bred to the art, and had carried it on from 1715. In 1740 they were appointed printers to the University, along with James Davidson, bookseller.

His learning engaged him in many disputes; but he carried them all on with temper and moderation, even under irritating circumstances. His biographers agree in giving him an unblemished character, and the world must allow him to have been the first scholar of his time. He died at Edinburgh, January 19, 1757, aged 83. All the publications he edited, while a printer, are particularly correct; and it must be allowed, upon the whole, that he was of great service to classical literature, and an honour to his native country.

Scotland, by the two Foulis, produced some of the most beautiful and correct printing which at present adorns the republic of letters. Even Bodoni of Parma, or Barbou of Paris, have not gone beyond some of the productions from the press of Robert and Andrew Foulis.

Robert Foulis began printing about the year 1740; and one of his first essays was, a good edition of Demetrius Phalereus, in 4to. In 1744 he brought out his famous *immaculate* edition of Horace, small 12mo. at Glasgow; and soon afterwards was in partnership with his brother Andrew. These two printers were so industrious that in thirty years time they produced as many

well-printed books as any of the famous printers of old. Their large classics, as well as their smaller sizes, either in Greek and Latin, or in Greek only, are as remarkable for their beauty and exactness as any in the Aldine series.

It is melancholy to reflect that their taste for the fine arts at last produced their ruin; for, engaging to establish an academy for the instruction of youth in painting and sculpture in Scotland, and the enormous expense necessary to send pupils to Italy, to study and copy the ancients, gradually brought on their decline in the printing business; and they found the city of Glasgow no fit soil into which to transplant the imitative arts although the literary genius of Greece and Rome had already produced to the Messieurs Foulis ample fortunes.

Notwithstanding the beginning of this scheme was very weak, yet in some of the departments it rose above mediocrity, particularly in drawing and engraving; but in moulding, modelling, and painting, they proved that all temporary and private attempts must be abortive for want of continual support. Human life is too short for bringing to perfection those arts which require permanent establishments to prevent their decline. This is particularly the case with painters, to whose studies no limits can be set, but whose encouragement is, of all others, the most precarious. However, it should be remembered, to the credit of Robert Foulis, that he was the first projector of a school of the liberal arts in the island of Great Britain. Whatever may hereafter be construed of the motives which urged this patriotic institution, selfishness must be entirely banished out of the question; unless the pleasure that arises from endeavouring to do good to one's country may be so considered.

Robert was originally a barber, and Andrew taught French in the University of Glasgow; but having a fine taste, and turning their thoughts to casting letter, they produced some works that will cause their names to be recorded in the Temple of Fame, when their unsuccessful attempts at painting and statuary will be totally forgotten.

Andrew Foulis died in 1774; and Robert, in 1776, exhibited and sold at Christie's, in Pall Mall, the remainder of his paintings. The Catalogue forms three volumes, and the result of the sale was, that after all the concomitant expenses were defrayed, the balance

in his favour amounted to the *enormous* sum of *Fifteen Shillings!!!* He died the same year on his return from London.

URIC printed some good Greek and Latin works, but was never considered as a rival of the above brothers. He died at Glasgow, in 1770."—*Lemoine*, 94–97.

About the year 1725 Mr. WILLIAM GEDD, a goldsmith of Edinburgh, embarked in printing, and "contrived a scheme to facilitate the printing of bibles, common-prayer books, classics, &c. by a novel method." I need scarcely add that this was by the means now denominated Stereotype, of which more hereafter. He brought up his son James as a printer, with whose assistance he completed plates for an edition of Sallust, which was printed at Edinburgh, in 1736. After various disappointments, losses, and mortifications, in the pursuit of his project, this ingenious man died about the year 1750. His two sons, James and William, who were both printers, died in Jamaica.

IRELAND.

IRELAND, Mr. Ames observes, was one of the last European states into which the Art of Printing was introduced. Mr. Ames used his best endeavours to procure from thence an account of its rise and progress in that kingdom, before 1600; but all the information he could collect, only amounted to what follows:—

"By a letter from Dr. Rutty, of Dublin, to Dr. Clark, of London, dated June 21, 1744, it appears, that the Common-prayer was printed in Dublin, by Humfrey Powel, in 4to. black letter, in 1551. Before, and even after this date, Irish authors caused their works to be printed abroad. The College library catalogue affords but one piece printed there so early as even 1633. Even down to 1700 very few books were printed in Ireland; whatever was written there was generally sent to London.

A Catechism, translated into Irish by J. Kerney, was the first book printed in Irish characters. This seems to have been done in 1577; though an Irish Liturgy was undoubtedly printed there in 1566, for the use of the Highlanders of Scotland. Other books are mentioned as being printed there by Herbert, but I think upon

too slight a ground. However, the first almanack printed there was by William Farmer, in 4to. Dublin, 1587.

No doubt but small treatises, proclamations, ballads, &c. were currently printed there all the time; but works of merit and importance were always sent to London, Paris, Antwerp, or Douay, to be printed.

The Irish Common-prayer was printed in folio, in 1608, in Irish characters, by John Francton. Mr. Ames mentions also the English statutes in force in Ireland, and several proclamations printed by him as king's printer; but when he began, or left off, does not appear.

Ireland, by its connection with London and Scotland, produces some very neat printing; Wilson's types are much approved of at Dublin. Alderman George Faulkner may be considered as the first printer in Ireland in his time; but it must be remembered that his letter was all cast in London. One of his best books is his edition of Swift's Works, 17 vols. 8vo.—*Lemoine*, 98, 99.

PROGRESS ABROAD.

(From Luckombe.)

Having shown the Introduction of the Art of Printing into England, and by whom first practised, we shall now, in as short a manner as the nature of the subject will admit, give our readers an account at what places in Italy, Germany, &c. it made its appearance before 1500, and by whom it was first introduced; and, as it is not our design to swell the following account, we shall not give a list of their works. Having already treated of Mentz and Haerlem, we shall proceed to

Subiaco, a monastery in the territories of Campania, in Naples, where it was introduced in 1465, as appears by an edition of Lactantius's Institutions, but it is unknown who was the printer. In this book are the first Greek types.—Augsburg, in Germany, where John Bember first set up a printing press in 1466.—Rome received the art in 1466, in the popedom of Paul II, by Conrad Sweynheim and Arnoldus Pannarts.—Tours, in France, received

it in 1467, the printer not known.—Ruetlingen, in 1466, had a printing house set up by John de Averbach, who printed a Latin bible.—Venice had the art introduced in 1469, by John and —— Vindeline, of Spire, who exceeded all others at that time in the neatness of their letter and elegance of their impressions.—Paris, in 1469, engaged Martin Crantz and Michael Friburger, or de Columbaria, or Colmar, in Alsace, to set up presses there, being the first in France except that of Tours.—Cologne, in 1470, received it by Conrad Winters.—Milan, in 1470, by Anthony Zorat, the inventor of signatures.—Strasburgh, in 1473, the birth-place of Gutenberg, had it introduced by John Mentel.—Bologna, in Italy, had the art conveyed to it by a native called Balthezer Azzoguidi, in 1471.—Treviso, in 1471, by Gerard de Lisa.—Ratisbon, in 1471, but it is not known by whom.—Amberg, in 1471, the printer also unknown.—Colle, in 1471, likewise unknown, notwithstanding their works are extant.—Naples, in 1471, by Sixtus Ruffinger.—Florence, in 1471, by Bernard Cennini.—Ferrara, in 1471, by Andreas Gallus.—Nuremburgh, in 1472, by Anthony Koburger.—Verona, in 1472, by John de Verona.—Parma, in 1472, by Stephen Corali.—Mantua, in 1472, George and Paul de Burschbach.—Derventer, in 1472, printer unknown.—Padua, in 1472, by Bartholomew de Val de Zochio.—Louvain, in 1473, by John de Westphalia.—Ulm, in 1473, by John Zeiner.—Utrecht, in 1473, the printer unknown.—Turin, in 1475, by John Fabri and John de Peter.—Genoa, in 1474, by Matthias Moravus and Michael Monk.—Brescia, in 1474, by Henry de Cologne and Statius Gallicus.—Alost, in 1474, John de Westphalia, and Theod. Martin.—Basil, in 1475, unknown.—Esling, in 1475, by Conrad Fyner.—Placentia, in 1475, by John Peter.—Pignerol, in 1475, by James de Rouges or Rubeis.—Vincenza, in 1475, by Herman Lichtenstein.—Lubec, in 1475, by Lucas Brandis de Schafz.—Valentia, in 1475, unknown.—Rostoch, in 1475, unknown.—Bruges, in 1475, by Colard Mansion.—Delft, in 1477, unknown.—Spire, in 1477, by Peter Drach.—Lyons, in 1477, by Bartholomew Buyer.—Geneva, in 1478, unknown.—Brussels, in 1478, unknown.—Coscenza, in 1478, by Octavian Salamonio.—Pavia, in 1478, by Francis de St. Petro.—Gouge, in 1479, by Gerard de Leen.—Swol, in 1479, unknown.—Caen, in 1480, unknown.—Genzano, in 1480, unknown.—Quilembourg, in

1480, unknown.—Lignitz, in 1481, unknown.—Regio, in 1481, Prosper Odoard.—Mont-Royal, in 1481, by Dominic de Nivaldis. —Wartsburg, in 1481, unknown.—Pisa, in 1482, by Gregory de Gente.—Aquila, in 1482, by Adam de Rotwill.—Erford, in 1482, unknown.—Ghent, in 1483, unknown.—Memining, in 1482, unknown.—Soncino or Soccino, in 1484, where the first Hebrew books were printed by Joshua and Moses, two Jewish rabbins.—Leipsick, in 1484, by Mark Brandt.—Vienne in Dauphiny, in 1484, by Peter Schenk.—Urbino, in 1484, unknown.—Antwerp, in 1485, by Gerard Leu, or De Leu.—Heydelberg, in 1485, unknown.—Cremona, in 1485, by Bernardina de Misenti.—Abbeville, in 1486, by John du Pre and Peter Gerard.—Toledo, in 1486, unknown.—Rimino, in 1486, by a Jew who printed Hebrew only.—Munster, in 1486, by John Limburgh.—Messina, 1486, by William Sconberger.—Modena, in 1487, by Dominic Rocociola.—Boisleduc, in 1487, unknown.—Tubingen, in 1488, by Frederick Meynberger.—Rouen, in 1488, by John le Bourgois.—Gaeta, in 1488, by Master Justus.—Tholouse, in 1488, by John James Colomiez.—Sienna, in 1489, by Sigismund Rot.—Hagenaw, in 1489, by John de Garlandia.—Lisbon, in 1491, a Hebrew book, by David Kimchi.—Seville, in 1491, by Paul de Colonia.—Dole, in 1492, by John Hebertin.—Ingoldstad, in 1492, by Peter Appian, who was so great an astrologer that the Emperor Charles V made him a present of 5,000 crowns of gold for writing Opus Cæsarum Astronomicum.—Lunenburgh, in 1493, by John Luce, —Magdeburgh, in 1493, unknown.—Thessalonica, in 1493, a Hebrew book, printer unknown.—Friburgh, in 1493, by —— Kilian.—Angoulême, in 1493, unknown.—Lyra, in 1494, a Hebrew work, printer unknown.—Madrid, in 1494, unknown.—Barcelona, in 1494, unknown.—Grenada, in 1496, unknown.—Mirandula, in 1496, unknown.—Pampelune, in 1496, by William de Brocario.—Avignon, in 1497, by Nicholas Lepe.—Leyden, 1497, unknown.—Provins, in the county of Brie, in France, in 1497, by William Tavernier.—Bergamo, in 1498, unknown.—Bemberg, in 1498, by John Pfeil.

ON PAPER.

SECTION V.

Invention of Paper—The Papyrus of Egypt and Italy—Paper made from Cotton—Bark—Chinese (or India) Paper—Linen Rags—General Description of the Method of making Paper by Hand—Machines for making Paper—Reasons for its adoption in England—Injurious Effects to the Journeymen, and to the General Interest of Trade, of their frequent Combinations, particularly exemplified in the Paper Manufacture—Mr. Whatman, his Efforts for the real Improvement of Paper—How counteracted—Didot, Fourdrinier, Dickinson—Chemical Aids—Gypsum—Calculations of Value—Injurious Effects of Earthy Substances, and Gas Bleaching—Specimen of what Paper ought to be.

THIS art, as at present practised, is not of a very ancient date; paper made of linen rags appears to have been first used in Europe towards the beginning of the thirteenth century, but of its origin nothing can with certainty be affirmed.

The ancients, as substitutes for paper, had recourse successively to palm-tree leaves, to table-books of wax, ivory, and lead; to linen and cotton cloths; to the intestines, or the skins, of different animals; and to the inner bark of plants. In some places and ages they have even written on the skins of fishes; on the intestines of serpents; and, in others, on the backs of tortoises. There are few plants but have at some time been used for paper or books, and hence the several terms, biblos, codex, liber, folium, tabula, &c., which express the different parts on which they were written; and though in Europe all these disappeared upon the introduction of the papyrus and parchments, yet, in some other countries, the use of them remains to this day. In Ceylon, for instance, they write on the leaves of the talipot: and the Bramin MSS. in the Tulinga language, sent to Oxford from Fort St.

George, are written on leaves of plants. Hermannus gives an account of a monstrous palm-tree, which, about the thirty-fifth year of its age, rises to be sixty or seventy feet high, with plicated leaves, nearly round, twenty feet broad, wherewith they commonly cover their houses, and on which they also write; part of one leaf sufficing to make a moderate book. They write between the folds, marking the character through the outer cuticle.

"Of the several kinds of paper, used at different periods, and manufactured from various materials, the Egyptian is unquestionably the most ancient. The exact date of its discovery is unknown; and even the place where it was first made is matter of dispute. According to Isidore, it was first made at Memphis; and according to others in Seide, or Upper Egypt. It was manufactured from the inner films of the papyrus, or biblos, a sort of flag, or bulrush, growing in the marshes of Egypt. The outer skin being taken off, there are next several films or inner skins, one within another. These, when separated from the stalk, were laid on a table, and moistened with the glutinous waters of the Nile. They were afterwards pressed together, and dried in the sun. From this papyrus it is, that what we now make use of to write upon hath also the name of papyr, or paper; though of quite another nature from the ancient papyrus."—*Townley's Illust. of Biblical Lit.*

According to the description which Pliny, after Theophrastus, gives of this plant, its stalk is triangular, and of a thickness that may be grasped in the hand; its root crooked; and terminated by fibrous bunches composed of long and weak pedicles. It has been observed in Egypt by Guilandinus, an author of the 16th century, who has given us a learned commentary on the passages of Pliny, where mention is made of it; and it is also described in Prosper Alpinus and in Lobel. The Egyptians call it berd, and they eat that part of the plant which is near the roots. A plant named papero, much resembling the papyrus of Egypt, grows likewise in Sicily; it is described in Lobel's Adversaria: Ray, and several others after him, believed it was the same species; however, it does not seem that the ancients made any use of that of Sicily, and M. de Jussieu thinks they ought not to be confounded, especially by reading, in Strabo, that the papyrus grew only in

Egypt or in the Indies. Pliny, Guilandinus, Montfaucon, and the Count de Caylus, are of this opinion.

"The internal parts of the bark of this plant were the only parts that were made into paper; and the manner of the manufacture was as follows:

"Strips or leaves of every length that could be obtained being laid upon a table, other strips were placed across, and pasted to them by the means of water and a press, so that this paper was a texture of several strips; and it even appears that, in the time of the Emperor Claudius, the Romans made paper of three layers.

"Pliny also informs us, that the leaves of the papyrus were let to dry in the sun, and afterwards distributed according to their different qualities fit for different kinds of paper; scarcely more than twenty strips could be separated from each stalk.

"The paper of the Romans never exceeded thirteen fingers-breadths, and this was their finest and most beautiful, as that of Fannius. In order to be deemed perfect, it was to be thin, compact, white, and smooth; which is much the same with what we require in our rag paper. It was sleeked with a tooth or shell; and this kept it from soaking the ink, and made it glisten.

"The Roman paper received an agglutination as well as ours; which was prepared with flour of wheat, diluted with boiling water, on which were thrown some drops of vinegar; or with crumbs of leavened bread, diluted with boiling water, and passed through a bolting-cloth. Being afterwards beaten with a hammer, it was sized a second time, put to the press, and extended with the hammer. This account of Pliny is confirmed by Cassiodorus, who, speaking of the leaves of papyrus used in his time, says, that they were white as snow, and composed of a great number of small pieces without any junction appearing in them, which seems to suppose necessarily the use of size. The Egyptian papyrus seems even to be known in the time of Homer; but it was not, according to the testimony of Varro, till about the time of the conquest of Alexander, that it began to be manufactured with the perfections which art always adds to nature.

"Paper made in this manner, with the bark of this Egyptian plant, was that which was chiefly used till the tenth century; when some invented the making of it with pounded cotton, or

reduced into a pulp. This method, known in China several ages before, appeared at last in the empire of the East, yet without any certain knowledge of the author, or the time and place of its invention."—*L.*

Bruce, the well-known Abyssinian traveller, had in his possession a large and very perfect manuscript on papyrus, which had been dug up at Thebes, and which he believed to be the only perfect one known. 'The boards,' or covers for binding the leaves, 'are,' says he, 'of Papyrus root, covered first with the coarse pieces of the paper; and then with leather, in the same manner as it would be done now.

Casiri states paper to have been first manufactured in Bucharia; and that the Arabs ascribe its invention to Joseph Amru, in the year of the Hegira 88, of Christ 706. Other learned men have thought, that we are indebted for it to the Chinese, from whom it passed successively to the Indians, Persians, and Arabs; and by the latter was communicated to the western nations. The manufacture of cotton paper is said to be still carried on to a considerable extent in the Levant.

Paper made of bark, is said to have been anciently used for the Imperial Protocols, in order to render the forging of false diplomas more difficult. Montfaucon notices a diploma, or charter, written on bark, in the Longobardic character, about the beginning of the eighth century, preserved in the library of Antony Capello, a Senator of Florence. It is a judgment given at Reate, about guardianship. The parties contending are either Goths, or, as is more likely, Lombards; the judges are Romans. It is remarkable, that the date was originally inserted in it; but has been defaced by a mouse gnawing it, as it lay rolled up: it is, however, one of the first charters in which the Christian computation has been used.

In the sixth volume of the Memoirs of the Royal Academy of Inscriptions and Belles-Lettres, there is a Dissertation of Father Montfaucon, which proves, that *Charta Bombycinæ*, or Cotton Paper, was discovered in the empire of the East towards the end of the ninth or early in the tenth century. There are several Greek manuscripts, both in parchment or vellum, and cotton paper, that bear the date of the year they were written in; but the greatest part are without date. From the dated manuscripts a

surer judgment may be formed by comparing the writings of that age with those that are not dated. The most ancient manuscript in cotton paper, with a date, is that in the King of France's library, numbered 2,889, written in 1050: another in the Emperor's library, that bears also its date, is one of the year 1095; but, as the manuscripts without a date are incomparably more numerous than those which are dated, Father Montfaucon, by comparing the writing, discovered some of the tenth century; among others, one in the king's library. If the same search were made in all the libraries, both of the East and West, others perhaps might be found of the same time, or more ancient. Hence it may be judged that this bombycine, or cotton paper, was invented in the ninth century, or at latest in the beginning of the tenth. Towards the end of the eleventh, and the beginning of the twelfth, its use was common throughout the empire of the East, and even in Sicily. Roger, King of Sicily, says, in a diploma written in 1145, and quoted by Rocchus Pyrrhus, that he had renewed on parchment, a charter that had been written on cotton paper, "*in charta cuttunea,*" in the year 1102, and another dated in the year 1112. About the same time the empress Irene, consort of Alexis Comnenes, says, in her rule drawn up for the nuns she had founded at Constantinople, that she leaves them three copies of the rule, two on parchment and one on cotton paper. Since this time cotton paper was still more in use throughout the whole Turkish empire.

Chinese paper is of various kinds; some is made of the rind or bark of trees, especially the mulberry tree and elm, but chiefly of the bamboo and cotton tree, and occasionally from other substances, as hemp, wheat, or rice straw, the cocoons of silk worms, and even old paper. The Rev. Robert Morrison, an English protestant missionary in China, sent out by the London Missionary Society in 1810, has translated into the Chinese language several portions of the Old and New Testament, some of which, beautifully printed on paper of Chinese manufacture, have been transmitted to England.

The Japanese make an exceedingly strong paper from the *Morus papyrifera sativa*, or true paper-tree, by the Japanese called *Kaadsit*. Several other eastern nations employ bark also, in the manufacture of paper. In fact, almost each province has its

several sorts of paper. The preparations of the paper made of the bark of trees, may be instanced in that of the bamboo, which is a tree of the cane or reed kind. The second skin of the bark, which is soft and white, is generally made use of for paper; this is beat in fair water to a pulp, which they take up in large moulds, so that some sheets are above twelve feet in length; they are completed by dipping them in alum water, which serves instead of size among us, and not only hinders the paper from imbibing the ink, but makes it look as if it were varnished over. This paper is white, soft, and close, without the least roughness, though it cracks more easily than the European paper, is very subject to be eaten by the worms, and its thinness makes it liable to be soon worn out.

"As to the origin of the paper we now use, nothing can, with certainty," says Father Montfaucon, "be affirmed concerning it." Thomas Demster, in his Glossary on the Institutes of Justinian, says, that it was invented before the time of Accursius, who lived in the beginning of the thirteenth century. Notwithstanding he there speaks of bombycine paper, there is reason to believe he also comprehends under that name the linen-rag paper which is much like cotton paper. In some countries both were equally used; as in Sicily, the state of Venice, and perhaps others. Several editions of Aldus Manutius, made at Venice, are on cotton paper: the proximity of Greece had, no doubt, introduced the use of it there; Demster seems therefore to speak of both. But we have a more ancient and express passage on linen-rag-paper in Petrus Mauritius, called the Venerable, a cotemporary of St. Bernard, who died in 1153. "The books we read every day," says he, in his Treatise against the Jews, "are made of sheep, goat, or calf skin; or of Oriental plants, that is, the papyrus of Egypt; or of rags: 'Ex rasuris veterum pannorum.'" These last words signify undoubtedly the paper, such as is now used: there were therefore books of it in the 12th century; and, as public acts and diplomas were written on the Egyptian paper till the 11th, it is probable that linen-rag paper was invented about the same century, and that it occasioned the disuse of the Egyptian paper in the West, as that of cotton did in the East. Petrus Mauritius tells us, that there had been already, in his time, some books of the linen-rag paper; but they must have been very

scarce: for, notwithstanding the most diligent search of the learned antiquary Montfaucon, both in France and Italy, he could never find a book or leaf of paper, such as is now used, before the year 1270; so that there is no hope of finding an exact date to this discovery."—*L.*

Paper fabricated from linen rags, is now used throughout Europe, and almost every part of the world whither Europeans have penetrated; and is a much more valuable material for writing upon than the cotton paper. We are ignorant both of the inventor and of the date of this important discovery. Dr. Prideaux delivers it as his opinion, that linen paper was brought from the East, because many of the oriental manuscripts are written upon it. Mabillon believes its invention to have been in the twelfth century. One of the earliest specimens of paper from linen rags which has yet been discovered, is that in the possession of Pestel, professor in the University of Rinteln, in Germany. It is a document, with the seal preserved, dated A. D. 1239; and signed by Adolphus, Count of Schaumburg. But Casiri positively affirms, that there are many MSS. in the Escurial, both upon cotton and linen paper, written prior to the thirteenth century. This invention appears to have been very early introduced into England; for Dr. Prideaux assures us he had seen a register of some acts of John Cranden, Prior of Ely, made on linen paper, which bears date in the fourteenth year of King Edward II. A. D. 1320; and that in the bishop's registry at Norwich there is a register book of wills, all made of paper, wherein entries are made which bear date so far back as 1370, just an hundred years before the time that Mr. Ray said the use of it began in Germany. In the Cottonian Library are said to be several writings on this kind of paper, as early as the year 1335. The first paper-mill erected in this kingdom is said to have been at Dartford, in 1588, by M. Spilman, a German. Shakspeare, however, refers it to the reign of Henry VI. and makes Jack Cade (Henry VI. pt. ii.) say, in accusation of Lord Sands, "Whereas, before, our forefathers had no other books but the *Score* and the *Tally*, thou hast caused Printing to be used, and contrary to the king, his crown, and dignity, thou hast built a paper-mill." During the same reign the head of the Duke of York, with a paper crown upon it, was placed on the walls of the city of York.

The inventor of the linen-rag paper, whoever he was, is entitled to the gratitude of posterity, who are enjoying the advantages of the discovery. The art of printing would have been comparatively of little importance without having the means of procuring a proper material to receive the impressions; while the papyrus was the only kind of paper, it was impossible to have procured it in sufficient quantities to have made large editions of books, without which the great bulk of mankind would have for ever retained the ignorant barbarity of the dark ages; the cotton paper, though an improvement, was but a rude and coarse article, unfit for any of the nice purposes to which paper is now applied. The perfection of the art of paper-making consisted in finding a material which could be procured in sufficient quantities, and would be easy of preparation. Of such is made the better kind of paper now in use, as, for instance, that upon which this work is printed, the manufacture of which we shall endeavour to describe.

A more common or economical substance could not be conceived than the tattered remnants of our clothes, linen worn out and otherwise incapable of being applied to the least use, and of which the quantity every day increases. Nor could a more simple labour be imagined than a few hours trituration by mills. The dispatch is so great, that it has been observed by a French writer, that five workmen in a mill may furnish sufficient paper for the continued labour of 3,000 transcribers. This was on the supposition of the process being conducted upon the old system of hand labour, but by the improved system of our modern mills, where the paper is produced in a constant and regular sheet by a curious machine, instead of the workman making sheet by sheet separately, the quantity produced is infinitely greater.

The operations of paper-making, as they succeed each other, are as follows:—

1st. The rags are washed, if requisite, and then sorted.

2nd. They are bleached to render them white, but this is sometimes deferred to another stage of the process.

3rd. They are ground, with water, in the washing-engine, till they are reduced to a coarse or imperfect pulp, called half-stuff, in which state the bleaching is sometimes performed; at other times it is bleached in the engine.

4th. The half-stuff is ground in the beating-engine, and water added in sufficient quantity to make a fine pulp, which being conveyed to,

5th. The vat, the sheets of paper are made by taking up a quantity of the pulp upon a mould of fine wire cloth, through which the water drains away, and the pulp coagulates into a sheet of paper; to take this off the wire is called *couching*.

6th. This sheet is put in a pile with many others, with a felt between each, and the whole is subjected to a strong pressure to press out the superfluous water.

7th. The sheets are taken out, the felts removed, and the sheets of paper pressed again by themselves for a certain time.

8th. The sheets are taken from the press and hung up, five or six together, to dry in the drying-loft.

9th. The paper is dipped into a tub of fine size, and pressed to force out the superfluity, after which it is dried again; but, in printing-papers, this process is rendered unnecessary by sizing the stuff whilst in the engine, by adding certain ingredients.

10th. The paper now undergoes an examination of each individual sheet, and all knots and burs are removed, and bad sheets taken out, forming the cashy and retree.

11th. The dry sheets are packed in a very large pile, and pressed with a most immense force to render the sheets flat and smooth.

12th. The paper is taken out, parted, and pressed again; parting means, to take down the pile sheet by sheet, and make another without turning the sheets over; by this means new surfaces are brought in contact with each other, and the surface of the paper improved.

13th. The paper is now finished, and is counted into quires, folded, and packed up in reams for market.

The linen rags, used for making paper, being collected by itinerant merchants, are purchased by wholesale dealers or rag merchants, who, for the London trade, separate them into five sorts of white rags which they sell to the mills; they are denominated Nos. 1, 2, 3, 4, 5, according to their respective qualities. No. 1, called London superfine, being all linen, the remains of fine cloth, which, not being so much worn as the coarser sort, is used

for making the finest paper. No. 5, is coarse canvass, which by bleaching may be brought to a good colour, but will not make paper of the strength and fineness of the finer sorts. The next sort is rag bagging, a worse canvass, of which the bags are made for packing the rags. Coloured rags are generally cotton of all colours, except blue, which is selected for making blue paper only.

Superfine paper for writing or fine printing can only be made from Nos. 1, 2, and 3; Nos. 4 and 5 are appropriated for making an inferior paper called news, because used for news-papers; the coloured rags are only used for the inferior papers.

Woollen and silk rags are used for brown paper, but even for this purpose they should be mixed up with a large portion of coarse linen.

Old paper may also serve for the same use, but the waste would be too considerable; whence it is rather reserved for pasteboard, in the manufacture of which the material is worked in less time, with less force, and with the same water. It will also lose much less. Besides, paper that has been once sized, though passed through boiling water, still gives the pulp a viscidity which ought to be guarded against.

The rags when first brought to the mill, if they are very dirty, as the coarse sorts generally are, are washed in hot water by a fulling mill, such as is used by dyers for washing cloth. The rags being well dried are (if they have not been previously sorted by the rag merchant) delivered to women to sort and scrape them. These women are disposed of in a large room full of old linen, seated two by two on benches with a large chest or box divided into five cases before them, for containing the five different sorts of rags as before mentioned. Each has a piece of pasteboard hung from her girdle and extended on her knees, upon which, with a long sharp knife, she unrips seams and stitches, and scrapes off all filth. Whatever can be used after being well shaken is distributed into the three cases according to the degree of fineness, and the women throw the rest at their feet. Those manufacturers who choose to be more exact in their sorting, have six cases for six different sorts of rags; the superfine, the fine, the seams, and stitches of the fine; the middling, the seams and stitches of the middling; and the coarse, without including the very coarse parts, which are reserved for making brown paper.

Some manufacturers are persuaded that the labour of the sorters is never sufficiently exact, and think that the hems and seams should be kept apart; that the coarseness of the cloth should be considered, and that the cloth made of tow should be separated from that made of the longer slips; cloth of hemp from cloth of flax; and, lastly, that the degree of wearing in the cloth should be attended to; for if rags which are almost new should be mixed with those that are much worn, the one will not be reduced to a pulp in the mill, whilst the other will be so attenuated as to be carried away by the water, and pass through the hair-strainer, and hence there must be a considerable waste in the work, a real loss to the manufacturer, and even to the beauty of the paper, for the particles already carried off are perhaps those which give it that smooth and velvet softness of which it is often deficient.

This is not all, for the pulp of uneven tenuity produces those cloudy papers, wherein are seen by intervals parts more or less clear, and more or less weak, occasioned by the flakes assembled on the mould in making the paper not being sufficiently tempered and diluted to incorporate with the more fluid parts.

It would, therefore, be very advisable to have the different qualities of the cloths milled separately, as also the hems and threads of the stitching; because sewing thread being never so much worn as that of the cloth, and being not so easy to be reduced, forms filaments in the paper. When the rags unequally disposed for trituration have been milled apart, then such different pulps may be mixed together without inconveniency, which will be found homogeneous, each having been worked during the time that was necessary, according to the state of the rag. Without this precaution the finest particles will be always lost, and the quality of the paper will be altered by an excess of the coarsest.

This great precaution in the sorting of rags is, of course, very expensive; but there is no doubt of its producing a total difference in the beauty of the paper, without hurting its goodness. It will besides be attended with the advantage of mixing a pulp, which is supposed to form the strength of the paper, with another that gives it softness and lustre; and thus these two qualities may be united which hitherto existed separately.

The greatest modern improvement in paper-making is the

bleaching the rags. This enables the manufacturer to produce the finest paper, in point of colour, from any kind of rags. He has, therefore, only to find such materials as will make a paper of a strong texture and a fine even surface, knowing he can produce colour at pleasure.

The bleaching is conducted in different methods, either bleaching the rags immediately after they are sorted, bleaching them in the state of half-stuff, that is, after it has been once ground in the washing engine, or while they are in the engine. For the first of these methods Mr. Campbell had a patent in 1792. His method is very similar to the process of bleaching of cotton thread. The apparatus consists of a receiver or chamber made of wood to contain the rags to be bleached; it is of a cubical form, and the joints made air tight; it is provided with several retorts, which being filled with a mixture of manganese, with two-thirds its quantity of sea salt, and a quantity of sulphuric acid equal to the salt, will, when moderately heated by a small sand-bath furnace, throw into the receiver a gas which quickly discharges any colour the rags may contain. The patentee directs that the rags should, before they are put into the receiver to be bleached, contain about their own weight of water, the superabundant water being pressed out; the rags should then be opened by a machine, called by the cotton manufacturers a *devil*, or some machine of that nature: they are to be distributed in the receiver in layers, spread in frames so that they will not come in contact with each other, or the rags may be placed in the body of the receiver, and have stirrers or agitators provided to expose every part of them to the action of the bleaching gas. After the process, which must be concluded as soon as ever the rags are sufficiently bleached, lest the gas should act upon and injure their quality, they are to be washed in water, and will be ready for the mill; here they are ground and reduced with water to a fine pulp till every individual fibre of the rag is separated.

This is effected by a cylinder, having a number of knives, or cutters, fixed upon it, parallel to its axis, and projecting about an inch from its circumference, which pass very close to other cutters exactly similar, fixed on a block, but not coming in contact with each other. The velocity with which the cylinder revolves draws the rags, with which the trough is charged, between the cutters

on the cylinder and those on the block; by this they are cut or torn in pieces, and by being, by the same action of the cylinder, repeatedly thrown over the top of an inclined plane, passing over the cylinder, and again falling under the action of the cutters, till they are reduced to a pulp.

The proper management of the rags while in the mill is a great part of the art of the paper manufacturer; and for this no rule can be given, as it wholly depends upon the material he has to work, and the article he intends to produce from it. For making superfine paper, the following may be described as the established system of manufacture for the London market: one hundred weight of the best white rags, called No. 1, is put into the engine above described, and the cock opened, to let a considerable stream of water run through it. The screw of the cylinder is adjusted to raise it up, so that its teeth do not actually touch the teeth of the block: the rags are not therefore cut, but rather rubbed in a violent manner, so as to open and expose every fibre to the action of the water, that it may carry off all dirt; this gentle washing continues for a quarter of an hour or twenty minutes, when the cylinder is *laid down*, that is, the screw is turned back till the cylinder is let down upon the cutters of the block, and rests its weight upon them; in this state they begin with a most tremendous noise and vibration to cut the rags into pieces; this is continued for about four hours, by which time the engine will come to work very steadily and with less noise, because the rags are cut into pieces and chopped up very much, though not yet reduced to a pulp. The bleaching now commences, if it has not been done in the first stage upon the rags. To bleach the stuff in the engine they stop the water from running in or out, and throw into the engine a quantity of bleaching salt, or muriate of lime; for fine rags one or two pounds, more or less, are used according to circumstances; in this state the engine is worked about an hour for the bleaching. During this time the rags lose their colour, but this does not colour the water, though it is rendered rather white and milky by the salt. The very best rags, when first put into the engine, are of a very yellow and dirty colour, but they become by the bleaching a very perfect snow white. The cylinder is usually raised up a very little during the bleaching; which being concluded, the water-cock is opened

again, and the washing continued about an hour to wash the salt away. This concludes the operation, and the half-stuff, as the rags are now called, is let off into a basket which suffers the water to drain through it: or if the manufacture is proceeding with dispatch, and every thing is ready, it is let off into the beating-engine at once; here the stuff is worked for about five hours with a sufficient quantity of water to make a pulp: in this affair great judgment is required as it materially influences the quality of the paper; the water is not suffered to run through the beater, as in the other engine. The only difference between the two engines is the firmness of their teeth. The cylinder of the washer has twenty grooves in it, each containing two bars or teeth, but the beater has three in each, so as to have sixty teeth in all. The beater is made to turn with a greater velocity than the other; the pinion which turns the beater having only twenty teeth, while the other has twenty-two. This greater velocity and number of teeth in the beater cause the strokes of the several knives passing by each other to be so rapid that they produce a coarse musical note or humming, which may be heard to a great distance from the mill; but the washer being coarser and less rapid, produces the most horrible growling which can be conceived, and is so violent as to shake the whole building.

In many small mills, which have only a local trade for the supply of the surrounding country, and where perhaps there is a deficiency of water, they only use one engine both for washing and beating, as it will do for either purpose; but the mills near London, chiefly at Maidstone in Kent, which have the advantage of an immense power of water, have two, three, or even five engines. This great power is indispensably necessary to produce that great degree of velocity with which it is necessary the cylinder should revolve. The stuff when finished is conveyed to a general receptacle called the stuff-chest, where it is kept till wanted to be made into paper, for the engines work day and night, though the making the paper, as it requires many workmen is, of course, only carried on in the day-time. The implements employed in this department of the manufacture are as follows: the *vat* with its *stirrer*, the *moulds* and *deckles*, the *felts*, the *vat press*, and another press similar to it for giving the paper a second pressure.

The vat is made of wood in the form of a tub, and generally

about five feet in diameter and two and a half in depth. It is kept at a proper temperature by means of a grate introduced at a hole in the side, and surrounded on the inside of the vat with a case of copper. For fuel to this grate, charcoal or wood is used, and frequently to prevent smoke the wall of the building comes in contact with one part of the vat, so that the fire has no communication with the place where they make the paper. Every vat is furnished on the upper part with planks, enclosed inwards, and even railed in with wood to prevent any of the stuff from running over in the operation. Across the vat is a plank pierced with holes at one of the extremities, and resting on the planks which surround the vats. This is used to rest the mould upon when a sheet of paper has been made. In different mills two methods are made use of to mix up the stuff and water with which the vat is filled; and to keep it in such an agitation as will prevent any coagulation or subsidence of the pulp, which would render the paper flaky and the different sheets of unequal thickness: in one, two instruments are employed to mix them, one of which is a simple pole, and the other a pole armed with a piece of board, rounded and full of holes. The operation of stirring is repeated as often as the stuff falls to the bottom. In the principal paper-mills for making writing paper, they use for this purpose what is called a hog; which is a machine within the vat, that by means of a small wheel on the outside is made to turn constantly round, and keep the stuff in perpetual motion. When the stuff and water are properly mixed, it is easy to perceive whether the previous operations have been complete; for if the stuff floats close and in regular flakes, it is a proof that it has been well worked in the engine.

The mould is a square frame or box made of well seasoned mahogany, and covered at the top with wire. In the old way, the wires were disposed in parallel rows, with others across to strengthen them; this may be readily understood from the examination of a sheet of paper. But the modern paper is chiefly made upon wire, woven in a manner similar to that of cloth. This wire cloth is made larger than the intended sheet of paper, and turned down over the sides of the frame; the size of the sheet is determined by a square frame of mahogany bound with brass; this, which is called the deckle, is moveable, and only held upon the mould frame by the workman grasping them together with both hands

on the opposite sides, thus forming a shallow dish or mould, in which a quantity of the pulp is taken up, which by the draining through of the water is left in a sheet upon the wire, this frame is necessary to retain the stuff, of which the paper is made, on the cloth; it must be exactly adapted to the wire cloth of the mould, otherwise the edges of the paper will be ragged and badly finished. The wire cloth of the frame is varied in proportion to the fineness of the paper and the nature of the stuff.

The deckle being removed, the sheet of paper may be taken up from the wire by applying the mould upon a piece of felt; it is then pressed with a felt between each sheet. The felts are pieces of woollen cloth spread over every sheet of paper, and upon which the sheets are laid to detach them from the wire of the mould; they prevent them from adhering together, and imbibe part of the water with which the stuff is charged, and the whole of it is placed together under the action of the press.

The two sides of the felt are differently raised; that to which the hair is longest is applied to the sheets which are laid down, and any alteration of this disposition would produce a change in the texture of the paper.

The stuff of which the felts are made should be sufficiently strong, to admit of being stretched exactly on the sheets without falling into folds, and at the same time sufficiently pliant to yield in any direction without injury to the wet paper. As the felts have to resist the reiterated efforts of the press, it appears necessary that the warp be made strong of combed wool and well twisted. On the other hand, as they have to imbibe a certain quantity of water and to retain it, it is necessary that the woof be of carded wool, and drawn out into a slack thread. These are the utensils, together with the presses, which are used in the apartments where the sheets of paper are formed.

Three workmen are employed in the operation of making the paper, which they manage thus; the first called the dipper, stands in a nitch or hollow part of that kind of ledge or table which goes round the circumference of the vat; he holds the mould and deckle in both hands as described above, then inclining it a little towards him he dips it into the vat and brings it up again in a horizontal position. The superfluous part of the pulp flows over

on all sides, and the quantity thought sufficient is shaken gently from the right to the left, and up and down horizontally until it is equally extended over the whole surface of the mould. These two motions are also accompanied by a slight shake, that serves to fix and stop the sheet as the water drains through the wire; and then the parts of the pulp uniting, the mould is immediately laid on the edge of the vat, the deckle taken off, and the mould made to slide along the board which is laid across the vat to the part where the sheet is to be laid or taken off. This board which is but two inches in breadth where the sheet is laid is nothing more than a deal board, which runs along the length of the vat, and is pierced with several holes at the broad extremity for letting the mould drain into the vat.

The dipper taking the deckle off the first mould, places it immediately on the second which is given him for dipping it immediately in its turn, and the second workman called the coucher, taking the mould on the board that runs across the vat, with the left hand raises it gently and lays it in an inclined position against one or two small pins which are driven into the board on the edge of the vat. In this condition the mould remains two or three seconds of time for draining into the vat, whilst the coucher extends a felt on which he applies the mould to take off the sheet, which being done he returns the mould to the dipper.

These operations are performed in so short a time, that seven or eight sheets of a middling size can be made in a minute; but it would be advisable to proceed more slowly, as no doubt the paper would be better made, and of a stronger consistence.

The dipper should be attentive in distributing the matter on the mould to reinforce the corner he is to take hold of, in raising and extending the sheets; for without this precaution he would break a great many. If he also takes up too much matter with his mould, if he does not equally extend it, or if he strikes his mould against the drainer, in all these cases, the matter is accumulated in certain parts of the mould, which produces something like ridges in the paper; or, if he lets the matter rest on the mould, and does not distribute it immediately, there will be parts of unequal thickness. When the vat is too hot, the stretching out of the sheet will be ill performed, because the water evaporates

too soon over the mould. Add to this, that, in letting the matter run towards one of the edges, by not giving his arm a regular motion, he may form a feather-edged paper, which may likewise happen if he does not extend his stuff sufficiently; if the vat is too hot; if the fecula of the pulp is too crude, and does not run well; if his arms are too stiff, and if he gives a bad shake, or if the mould is ill made. An indented sheet happens by not taking off the deckle properly, or by the fault of the felts having stitches, seams, and selvages in them.

In examining a sheet of paper, before the light, a greater opacity is seen on both sides of each brass wire than towards the midst of the space. This thickness is occasioned by the pulp, which the motion of the mould could not distribute, being stopped by the wires, or the manicord, that serves to string them. This defect is completely remedied by the improvement of weaving the wire of the mould like cloth. In order to avoid drops of water, which, if they fall upon the paper will make disagreeable spots, the mould should be laid gently, and raised readily; and, as often as the coucher returns his mould to the drainer, he ought to be careful to shake his hands behind him, for, without this precaution, his fingers, which are wet, would drop upon the sheet already laid, whilst he is covering it with the felt. If he is also too quick in laying, the air, detained and compressed under the sheet, occasions a bloating, and makes some parts more clear than others.

The coucher having taken off the several sheets from the mould as fast as they are made, lays them one by one in a pile under the press, with the felt between each individual sheet, until they have, in this manner, made six quires of paper, which quantity is called a post, and contains one hundred and forty-four sheets. When the last sheet of the post is covered with the last felt, the workmen about the vat assist each other to submit the whole heap to the action of the press. They begin, at first, to press it with a middling lever, and, afterwards, with a lever fifteen feet in length; this operation expresses the water and thus gives the paper a strength which it did not possess before. The vestiges of the protuberances made by the wires of the mould, are altogether flattened, and, of consequence, the hollows opposite to them disappear also; but the traces formed by the interstices of the wire,

in consequence of their thickness, appear on both sides, and are rounded by the press.

The business of the third workman, called the lifter, begins after the operation of the press, and consists in taking the sheets off the felts (for they are caused to adhere to them by the action of the press), and then making the sheets up in a second pile: but if the coucher works too fast, and the lifter finds himself hard pressed, he cannot stretch out his sheets exactly upon one another, so as to make a neat and compact pile, for this is very necessary to make the paper of a regular and equal thickness, when it is put under a second press, which is done as soon as several of the piles are completed, and can be collected together; this second pressure being made with all the sheets in contact with each other expresses a great quantity of water from the paper, and gives the sheets a very considerable strength; it also tends to take out those freckles in the surface of the sheets, which were occasioned by the impression of the felt; though it is necessary to have felts in the first pressure, because the paper is then so wet that it would be pressed into a solid mass if the sheets touched each other. The paper remains in the second press as long as it can, until another pile is made ready by the lifter, when it is taken out and the sheets carried to the drying-house.

When the sheets are very thin, and it is found after the second pressure that they are formed by a fecula which is still saturated with a great deal of water, so that they have little consistence, it is probable that the second press has so joined them to one another, that it is difficult to separate them; and, indeed, they cannot well be taken off, one by one, without tearing a great number; but, happily, this separation, sheet by sheet, is not necessary for drying, so that seven or eight may be taken together, which is called forming the pages; sometimes, also, a less number may do when the paper is of a large size, but never less than three sheets are hung up together. It is of more importance than we are at first aware of, that the sheets should remain, as it were, pasted several of them together; if they were single, and one by one, they would not resist the moisture of the size, yet this moisture is sufficient to facilitate the operation; and, to hinder their separating, when they are hung up to dry, they should be so

placed that the pages may receive the wind in the surface and not in the sides and edges.

The drying-lofts are very extensive apartments, usually the upper parts of all the buildings of the mill; the sides are formed by loffer boards, which are a kind of lattice, or boarding, which can be opened and shut to admit more or less air at pleasure. The sheets are taken up upon a piece of wood like a T, and hung upon hair lines, stretched across large horizontal wooden frames, called tribbles; and then, as they are filled, are lifted up between upright posts, to the top of the room, and retained by pegs put in the posts; then another frame being filled, is put up in its turn, and so on, till the loft is filled from top to bottom.

Mr. Bramah has made an improvement on this method, which enables women or children to perform the business of the drying-house instead of men, and adds considerable facility to the process of hanging and re-hanging the sheets. Instead of using tribbles, he has a proper number of frames, made of wood, mounted with leaves, to represent so many frames or clothes'-horses, similar to those used by any common laundress, but of a length proportioned to the dimensions of the drying-house, which may be divided into two or more rows, so as to leave room and proper aisles or passages for the convenience of the operators to hang and re-hang the sheets; and the height of the frames may be equal, or nearly equal, to one half the story in which they are fixed. They are stationed at proper distances from each other by means of upright posts with grooves fitted to the frames, so that each may slide vertically up and down, by means of lines and pulleys affixed to each, just like sash windows that are double hung; so that while one of the frames is sliding up to touch the ceiling of the building with its upper edges, the alternate one may be depressed till its lower edge, or the paper which hangs upon it, may come nearly in contact with the floor. By this means children can reach to hang the paper, and can afterwards elevate the frames to their proper height in the loft.

The paper, when dry, is carried to an apartment where it is sized; this is done by dipping each page, that is, each bundle of thirty-four or thirty-five sheets, which have been dried together, into a vat, containing a weak size. This is made from shreds and parings got from tanners, curriers, and parchment-makers; all the

putrefied parts, and the lime, are carefully separated from them, and they are enclosed in a kind of basket, and let down by a rope and pulley into the caldron. This is a late invention, and serves two valuable purposes. It makes it easy to draw out the pieces of leather when the size is extracted from them by boiling, or easy to return them into the boiler if the operation is not complete. When the glutinous substance is sufficiently extracted, it is allowed to settle for some time, and it is twice filtered before it is put into the vat where they dip the paper. Immediately before the operation, a certain quantity of alum is added to the size. The workman takes a handful of the sheets, smoothed and rendered as supple as possible, in his left hand, dips them into the vat, and holds them separate with his right, that they equally imbibe the size. After holding them above the vessel for a space of time, he seizes on the other side with his right hand, and again dips them into the vessel. When he has finished ten or a dozen of these handfuls, they are submitted to the action of the press, from which the superfluous size is carried back into the vat, by means of a small pipe. The vessel in which the paper is sized is sometimes made of copper, and furnished with a grate, to give the size, when necessary, a due temperature, and a piece of thin board or felt is placed between every handful as they are laid on the table of the press. This method is denominated tub-sizing.

After the sheets are sized and pressed they must be quickly separated from each other, to prevent their adhering together, but it is to be observed that the size is an extremely weak solution, so that the sheets will be in no danger of adhering, until they are dry. In some of the most improved mills the sizing is performed in a machine, consisting of a large square vat, or wooden cistern, containing the size: in this a strong screw press is situated horizontally, the side beams of the press forming the outsides of the vat, and the screw works through a tight collar of leather. The press being open, the sheets of paper are suspended on lines, stretched in a frame, similar to those on which they are dried, and this is let down to immerse them in the size; and, after remaining a proper time, the screw of the press is worked, and the sheets thus gathered up into a close parcel; then the lines being withdrawn, a strong pressure is given, and the paper, when taken out, is finished ready to be hung up again to dry. By this means the

paper is sized very equally, whereas, in the old method of tub-sizing, some sheets drained off more size than others, and rendered them unequal, as well as making marks in them.*

This operation of sizing is very expensive; but, for printing papers, and some others, it is frequently dispensed with. In this case, a small quantity of oil mixed with alum, pounded very fine, is thrown into the beating-engine towards the end of the process. About a pint and a half, or less, is sufficient to give the paper a proper quality for printing, and is rather better than tub-sizing. This method is denominated 'engine-sizing.' Powder blue is also put into the engine to give a bloom to the paper.

When the paper is sufficiently dry it is carried to the finishing room, called the *Saul*, where it is pressed, selected, and examined, by women, who remove all damaged and imperfect sheets; it is then put into the dry press, and squeezed with a most immense force, to render the paper flat, and give it a good surface. The lever of this press is fifteen or eighteen feet long, and ten or twenty people are employed at the last to work it, though they sometimes use *Sampson*, that is, a windlas like a crane, with which they purchase the lever of the screw. The dry press is generally large enough to hold two packs of ordinary paper side by side. The *Saul* is surrounded by the dry presses, often twenty or thirty, but one windlas serves them all. The paper remains under pressure as long as the demand of the mill will admit, but while it is in this operation it is parted, once, twice, or even three times: to do this, the heaps are carried back to the table, and the whole turned, sheet by sheet, in such a manner that the surface of every sheet is changed as relative to its neighbour, and in this situation they are again brought under the press. It is in conducting these two operations of parting and pressing sometimes four or five times, or as often as the nature of the paper requires, that the perfection and finish of the finest writing and drawing-paper consist. If the stuff is fine, or the paper slender, the parting is less frequently repeated. In this operation it is necessary to alter the situation of the heaps, with regard to one another, every time they are put under the press; and, as the heaps are highest in the middle, to

* *Query.*—Might not Mr. Oldham's method of wetting paper *in vacuo*, as described in Chapter III of this work, be made available to the improvement of this process?

place small pieces of felt, which will bring all parts of the pile to an equal pressure.

Mr. Bramah's ingenious hydrostatic-press* is most admirably adapted for dry-pressing the paper; for, in a large paper-mill, an injecting pump may be kept in constant action by the water-mill,

* As this beautiful machine is now of very general use in printing-offices, while the principle upon which it acts, there is reason to believe, is far less generally understood, I shall here give the following description of its mechanism:—This press has no screw, but, in lieu thereof, a piston or plunger, fitted accurately into a chamber, or barrel of cast iron, by collars of leather; a small force-pump is situated near to the press, by which water is injected into the great chamber, the piston is thus expelled from it at every stroke, in proportion to the quantity of water injected, and this presses up the board, or follower of the press, with a power in proportion to the relative diameters of the pump and the piston.

The bottom of the cylinder is made sufficiently strong, with the other parts of the surface, to resist the greatest strain which can ever be applied to it; the pipe from the forcing-pump communicates with the cylinder at the bottom, and the pump has, of course, valves to prevent the return of the water.

The action of the press may very readily be comprehended.—Suppose the space between the press piston and its cylinder, the conducting tube, and the interval between the injecting piston and its cylinder, to be filled with water and that an adequate supply of water be included in the reservoir;—if the injecting piston be raised, the water will flow from the reservoir into the injecting cylinder, through the valve. On the descent of the injecting piston, the valve closes, the water forces up the valve and passes through the conducting tube into the press cylinder, where it raises the press piston, together with its load, in proportion to the quantity of fluid injected, as stated above. On the subsequent rise of the injecting piston, the descent of the valve prevents the return of the fluid, and, consequently the descent of the piston, and the operation is repeated as before described.—When the full effort of the press has been exerted on the objects submitted to its action, the discharging cock is loosened, and the water returns through the aperture into the reservoir.

The mechanical effect of the pump will admit of an easy calculation. It is known, that if there be a mutual communication between two columns of any fluid, whatever pressure or effort may be exerted on the one, will be transmitted to the other, in a ratio, proportional to the respective areas of each; consequently, the relative areas of the injecting and press pistons, constitute the hydrostatic power of the press; and the mechanical effort exerted on the injecting piston is transmitted to the press piston by the intervention of the fluid, in a ratio proportional to their comparative areas.

Let us suppose, as an example, that the diameter of the press piston be 8

and inject water into an air vessel, from which pipes are conducted to presses in all parts of the mill, and by simply opening a cock at any press, the required pressure will be instantly given

inches: and that of the two injecting pistons be two inches, and one inch. The areas of the press, and two-inch injecting piston, are proportional to the squares of their diameters, which are as 4 to 64, or as 1 to 16; those of the press and the one-inch injecting piston, are as 1 to 64; this constitutes the hydrostatic power of the press. The mechanical power of the levers is as 1 to 10, when the pin or fulcrums are in the outer holes; and as 1 to 20, when in the others; and by the multiplication of ratios, the four hydro-mechanical powers will stand thus; $16 \times 10 = 160$ to 1; $16 \times 20 = 320$ to 1; $64 \times 10 = 640$ to 1; and $64 \times 20 = 1280$ to 1; which are in proportion to each other, as 1, 2, 4, and 8. If we, therefore, suppose the centre of effort on the levers, to be depressed with a force of 1 man = 168 lb. 2 men will be = 336 lb. or 3 cwt $\times$ 1280 = 3840 cwt. or 192 tons; the objects submitted to the action of the press will therefore sustain a pressure equal to the direct action of 192 tons.

These proportions may be erroneous in a slight degree, as according to the recent discovery of Mr. Perkins it is proved that water is not a totally incompressible fluid, but the calculation will be sufficiently accurate for all practical purposes.

The press should be kept clean and neat; the reservoir should be filled with pure water; and the best sweet oil alone should be applied to the pistons.

From the simplicity of its construction, the press is by no means liable to be out of order; but if any extraneous matter attaches itself to either of the valves, their action will necessarily be suspended, until the substance be removed; but this, it is presumed, will scarcely ever be found necessary.

In using this press, it is desirable to begin with the two-inch injecting pump, the pin of its lever being in the outer hole, in order to save time; when the resistance has become greater than this power can overcome, the pin of the lever should be fixed in the inner hole, and the action continued; when however this power is insufficient to overcome the resistance, recourse must be had to the one-inch injecting pump, with the pin of its lever in the outer hole; and finally the utmost power of the press exerted, by shifting it to the inner hole.

In a screw-press, of a fine thread, it requires nearly as much labour to unscrew as to screw it down, an evidence of the enormous friction of a screw when acting against a great pressure; but the hydrostatic-press only requires a cock to be opened to let out the water from beneath the piston, which then descends quickly by its own gravity, or the elasticity of the substance under the pressure. The greatest convenience of the hydrostatic-press is, that the power can so easily be transmitted to it from any distance, and in any direction, by means of pipes conducted along in situations where all other means of conveying the motion would be complicated and expensive in the extreme,

by the elasticity of the confined air operating on the enlarged surface of the piston of any press. The air vessel has, of course, a safety-valve, to allow the escape of the water, when the pressure becomes so great as to endanger the rupture of any of the vessels; for it is to be observed, that the power of this principle is irresistible when the pump is worked by a mill, and will burst any vessels without the least appearances of strain on the moving parts of the pump.

To avoid the necessity of having a great number of presses for the dry-work of a mill, Mr. Bramah proposes to use another kind of apparatus called *retainers*, which consist of a top and bottom bed, of wood or metal, of sufficient strength to resist the re-action of the paper when the press is slackened from its severest squeeze, and to retain it, in its most compressed state, for any required length of time, after the grasp of the press has been finally withdrawn. In these retainers vertical bars are fixed at the corners of the lower bed, passing through the holes in the upper one, and have each several holes to receive wedges or keys, by which the upper bed of the retainer is confined to preserve the state into which it has been pressed, notwithstanding any efforts of the paper or felts to expand to the space they originally occupied. These retainers are mounted upon wheels, applied to the lower boards, in the manner of a truck, and a railway is laid which goes through the press, so that the paper may be piled upon the trucks, the top board put on, and the whole wheeled into the press; and the operation being finished, the retainer is made fast; the press is then slackened, and the whole is wheeled forwards, leaving the press vacant for the reception of another retainer.

After the dry-pressing, the paper is finished, and only requires to be assorted into different lots, according to its quality and faults; after which it is made up into quires. The person who does this must possess great skill, and be worthy of confidence, because he acts as a check on those who separated the paper into different lots. He takes the sheets with his right hand to fold and examine them, laying them over his left arm till he has the number requisite for a quire; then brings the sides parallel to one another, and places them in heaps under the table.

The paper is afterwards collected into reams, of twenty quires each, packed up for the last time, and put under the press, where

it is continued for ten or twelve hours, or as long as the demand of the paper-market permits.

A great revolution has been recently made in the art of paper-making, by the adoption of machinery for fabricating it from the pulp and, at one operation, pressing it between the felts, and rendering it fit for the second pressure, by which an immense saving of labour is made, and the quality of the paper improved. Messrs. Fourdrinier had a patent for these machines, of which they erected great numbers in different parts of the kingdom. Their construction is extremely curious and not easily explained without drawings. A wire-cloth, of many yards in length, is used, its ends being sewed together; and it is extended horizontally between two rollers, so as to represent a table, which, by the revolution of the rollers, is in constant motion; at one end the vat, containing the pulp, is situated, having a lip, or low side, at which the pulp runs over in a continued stream upon the cloth, and is, by its motion, carried forwards; the cloth is contrived to have a continual shaking-motion sideways, which tends, with the draining through of the water, to coagulate the pulp into a sheet of paper; this is taken off from the wire, at the other end, in a continued sheet, between a pair of rollers, like those of a flatting-mill; each of these has an endless felt passing round it, and the paper is introduced to receive its pressure between the felts, so that it is delivered from the machine in an endless dry and firm sheet. A reel, turned by the machine, receives the paper, and winds it up as it comes off the cloth; and when a sufficient quantity is wound on it, it is cut off by a knife, which, by cutting through the folds, divides the paper into separate sheets, which are then ready for the operation of the second press. The machines are constructed with the cloth so wide, that the continual sheet is cut up into two, and sometimes three, in width, by which means it produces an immense number of sheets in a short time; but the greatest advantage is in making very large sheets, which it will do to almost any extent in length, and as much as two yards in width. This machine is only adapted for making wove paper, but a patent has lately been taken out for carrying this invention further, and making the paper with lines in it, which is done in separate moulds, similar to those at present used, but worked by machinery.

"The idea of a machine for this purpose originated in France; and about sixteen years ago Mr. Leger Didot brought to this country a very rude and imperfect model, which, after a variety of alterations and additions by himself, and English artists, principally Mr. Donkin, engineer, has been improved into one of the most beautiful and efficacious machines that can be imagined. It would be impossible, without entering into an immense detail, to give more than a sketch of this elaborate machine, which consists of a great variety of apparatus, and abounds in ingenious contrivances. The same may be said of a machine since invented by Mr. Dickenson, which accomplishes the same object by a method entirely different. He employs a hollow cylinder, the surface of which is pervious, and is covered with woven wire; and this revolves in a vat of pulp, though not completely immersed; but by the axis, which is a hollow tube, there is a communication from some internal apparatus to a pair of air-pumps; and by their action the paper is formed, and made to adhere to the cylinder, and afterwards detached from it to an endless cloth, which conducts it to the pressing rollers. The pulp for this machine is much more dilated than for any other mode of making paper, and therefore admits of the fibres which compose it being longer, which has a beneficial effect with regard to the texture of the paper, and renders it better adapted to receive a clear and distinct impression."—*Dib. Dec.* 341.

The adoption, in England, of this machine, owed its origin principally, I believe, to the difficulties experienced by the manufacturers generally of properly controlling the operations of their workmen. During the existence of the patent, and under the pressure of a heavy annual charge, many were set to work; and since then the number has been amazingly increased; and were it generally applicable to the various descriptions of paper required by the public, I am persuaded its use would become almost universal. No class of our manufactures in this kingdom has suffered so much as that of paper from the sad and miserable effects of those associations amongst the labouring artisans which pervade, more or less, almost every branch of business. How injuriously they have operated in retarding the improvements which would, otherwise, have taken place in those manufactures, in which both

masters and men are mutually interested, has been here most fatally exemplified.

Time and care and attention, aided by skill and ingenuity, are requisite to the attainment of perfection in every branch of business; and where the former points are disregarded, it is well-known that a contrary effect must be produced. In the fabrication of good paper this is particularly requisite, no less than in the excellence of superior printing; and the introduction of this counteracting spirit of combination, whether into the interior of the printing-office, or of a paper-mill, must always give cause to regret that the views of the labouring artisans are not more in unison with those of their employers, and that they regard less the perfecting of the work under their hands than the obtaining of a higher rate of wages and fewer hours of employment. Too ardent a desire for expedition in their movements ruins every thing under such circumstances.

The late Mr. Whatman, than whom no person added more to the *real improvement* of the manufacture, had not, for many years of the earlier part of his life, much of opposition to meet with from the workmen; and by a judicious application of moderate encouragement they were stimulated to aid his endeavours by contributing their due proportion of care and attentive workmanship. At that period each individual stood singly; no associations were then in existence; and the employer could exact from the labourer a just return for the wages paid him. But the latter years of this gentleman were clouded with regret, at finding his plans opposed in every stage of their progress by his work-people; and, foreseeing nothing but an increase of the evil, and no means of establishing a just and necessary controul, he retired from the manufacture with disgust and disappointment.

The increasing population of the country, and the great extension of education through every part of it, has rendered the demands of late years for paper such, that in the present age those of the last have been more than doubled. The consequent encouragement thus given to the erection of manufactories in a country rich and speculative like ours, has produced its natural result in an increased competition for the procuration of materials, and the sale of paper: for, as might also have been expected, the supply of materials could scarcely be found to keep equal

pace therewith, notwithstanding the immense importation of rags from every country whence they could by any means be obtained.

But the taste of the public must, at all events, be gratified, however fastidious, and perhaps injudicious, it may be deemed; and to *colour* every thing, in fact, has been sacrificed: firmness, durability, and usefulness, have been made to yield to this *exterior display;* and nothing will at present meet a liberal purchase unless a whiteness superior to snow be first obtained, as an indispensable medium for showing off an ink of intensely jetty blackness.

Another thing is also demanded from the manufacturer—that these requisites be obtained at a price below a due compensation to him for the cost. Hence the introduction of mineral substances to the original vegetable matter, and the aid of chemical agencies to produce this demanded effect; and hence the foundation of the various grounds of complaint arising from the consequent deterioration of the paper.

To retrace the steps that have been trod, and to return the operations of the manufacture to the point when the improvements, improperly so termed, commenced, is not, I conceive, a task of easy accomplishment; the change can only be wrought by degrees, and by awakening the public mind to a due consideration of the necessity of discriminating, in future, between durable utility and transient show: and by not suffering external appearances, however imposing, to warp their judgment, the result would be, that a good substantial and lasting article would then find its way into the market, to the ultimate satisfaction of posterity, who are deeply interested therein, no less than the present age, instead of the present evanescent and perishing article.

The science of chemistry has, as stated above, been very much applied to aid the manufacture of paper, but never to so great an extent as since the invention of the machinery before spoken of. For giving a delicate whiteness, and a profitable weight, to paper made from rag of an inferior quality, even earthy substances have been resorted to, and with this, and various applications of the acids in the form of gas, with other chemical preparations, to aid appearance, a showy article is now produced, for which those who use it, or those who live after them, will pay right dear. Whole piles of quire-stock are already nearly crumbling to dust in the warehouses of booksellers, never to come to light as books: and

many a volume, designed to enrich the library of its possessor, and to descend as an heir-loom to posterity, now presents to the mortified owner its elegant print surrounded by a margin of tan-colour, which, in some instances, forms, as it were, a complete frame round each page; the oil-varnish in the composition of the ink seeming to preserve the interstices between the print from the same kind of discolouration. School-books printed on this species of paper will scarcely last out their destined period from one vacation to the next. A favourite love-letter written upon it will endure but few unfoldings and caresses, and prove as fragile as the vows it contains. Indeed, I have now a sample of some which is so brittle as to break short upon being creased; and, when in tatters, so incombustible does the gypsum make the fragments, they will scarcely serve to light a candle; nor are they sufficiently trustworthy for even the most ordinary domestic purposes. The plaster gives colour and weight without body, and the over-delicacy of colour which it presents is a sure sign that such an article will soon fade and wax dingy, like an over-fair complexion. But a pretty good profit must accrue, both to the paper-maker and the excise-revenue, upon the many tons used in the course of a year. The cost of it, which, at one time, was three-halfpence a pound, is now not a penny.

The above was written, and some calculations made merely upon my own idea of what the machine-working-paper-mills were doing, without the least expectation that I should find any one who would publicly second me in this line of argument; and I must confess that I felt considerable reluctance, first from a diffidence of giving an opinion upon so important a subject, next, from a feeling of respect towards gentlemen of a profession so closely connected with my own, before I could make up my mind to commit my observations and objections to the public eye. However, my diffidence is removed and my objections strengthened by a paper in a monthly publication of some celebrity in the scientific world, the writer of which, with little measure of expression, goes much further than I do, and although I certainly dissent from the imputation implied by the word *fraud*, yet, as the *facts* exist, I shall give an extract from the "Annals of Philosophy."

"*Frauds and Imperfections in Paper-making.*—In order to increase the weight of printing papers, some manufacturers are in the habit of mixing sulphate of lime, or gypsum, with the rags, to a great extent. I have been informed, by authority upon which I place great reliance, that some paper contains more than one-fourth of its weight of gypsum, and I lately examined a sample which had the appearance of a good paper, that contained about twelve per cent. The mode of detecting this fraud is extremely simple: burn 100 grains, or any given weight, of the paper in a platina, or earthen crucible, and continue the heat until the residuum becomes white, which it will readily do if the paper is mixed with gypsum. It is certainly true that all paper contains a small quantity of incombustible matter, derived from accidental impurities, but it does not amount to more than about one per cent; the weight, then, will indicate the extent of the fraud. With respect to the imperfection of paper, I allude to the slovenly mode in which the bleaching by means of chlorine or oxymuriatic acid is effected; this, after its operation, is frequently left in such quantity in the paper, that it may be readily detected by the smell. Some time since, a button-maker in Birmingham, who had manufactured the buttons in the usual way, was surprised to find that, after being a short time kept, they were so tarnished as to be unsaleable; on searching for the cause, he found that it was derived from the action of the chlorine, which had been left in the paper to such an extent as to act upon the metallic buttons.—EDIT." *Annals of Philosophy*, July, 1823, No. xxxi. p. 68.

This amounts to precisely what I had brought my own mind to upon the subject; namely, that we printers were having a worse article to work upon, and the booksellers and the public a worse to pay for, from the use of gypsum in paper-making. Let us see how the account will stand in figures. This stuff is not merely used in a process where its colouring matter is extracted, and the residuum let run off to waste; but care is taken, as I understand, that no loss shall accrue of its weight, for after the beating of the rag into pulp, the gypsum is mixed in a separate vessel, and added to the mass, to be drawn out with it into the machine. Then, supposing half the quantity stated, or 1-8th per cent of the

weight of machine-made paper to be the quantity of gypsum in its composition, does it not amount to something like the character given of it in the "Annals?"

Take, for example, a sheet of paper which was offered with a view of its being used for this very work. The weight was marked 35 lbs. price 52*s.* which is about 1*s.* 6*d.* per lb.; say for this a purchaser will have seven-eighths or 30 lbs. 10 oz. of what the paper ought to be wholly made of, viz. 2*l.* 5*s.* 6*d.*; for the other eighth, or 4 lb. 6 oz. he would pay 6*s.* 6*d.* for what was not worth more than 4½*d.*

This is the account between the paper maker and the consumer: in any further calculation it must be remembered that the excise duty gets part of this profit, viz. one-sixth, the duty upon paper being 3*d.* per lb., so that the excise gets a duty of 3*d.* per lb. upon an article originally costing one penny.

The difficulties presented to the printer in working this machine-made paper, are manifold. First, in making up his furniture: the dimensions of all cut paper (as this is generally termed by the men) are various in the same quire; he, therefore, cannot make margin with any certainty of the sheets folding even and square, out-and-out. If he happen to take a smaller sheet, the fore edge, when folded, will hang over the other parts; if he take a larger sheet, the smaller ones must be deficient in their margin; if he take a medium size, the consequence is still no other than a medium mischief.

Next, as to the wetting: this will be a matter of some hazard, and not until after the experience of several reams will the wetter get sufficiently acquainted with each lot of paper, to proportion the wetting; one dip for a quire, or three times for two quires, is generally quite sufficient; absorbing the water very rapidly, it soon becomes a mass of inseparable pulp, as far as the water penetrates, and will require to be taken to a table the next day, and every sheet to be turned over and smoothed by the hand being passed over it, to take out the creases and cockles, the sheet appearing like the leaf of a Savoy cabbage; the heap must be then pressed, and lie twelve hours more before it is fairly ready for working.

At press, to a man careful of his work, more difficulties arise: some of the machine-made paper, from the prevalence of the

material before-mentioned, and from the great pressure necessarily applied to give it a smooth face, has really no adequate substance left into which printing, or impression, can be forced; it is mere surface-colouring; consequently, the ink on the surface of the type becomes spread, above its proper dimensions, on the paper, producing a slurred or ragged appearance; to this it may be added, that the manner in which machine-made paper is sized, is calculated most effectually to resist any absorption of either the varnish or colouring matter of the ink. In the old way of paper-making, by tub-sizing, the substance used as size, as has lately been stated, is made, by the usual process, from parchment-cuttings, skins, &c. and this, generally, in such a manner as to give to the paper firmness and tenacity. In the new process no such substance would answer. The *size* is a production from the soap-manufacturer,—a composition of soap-lees and oil. This accounts, at once, for the difficulties above stated in the wetting process of printing, and the subsequent trouble to a printer, because the ink *will not set*. All this paper, in a greater or less degree, resists the absorption of the ink,—it has no affinity to the compound: the ink only dries skin deep: set-off sheets for the tympans, in the reiterations, are requisite to a great extent, and the ink, when supposed to be dry, is acted upon by the book-binder's paste-boards and leather throughout the whole book, until one page *sets off* upon its opposite one, and type upon type obliterates each other,—then add the want of opaqueness in the paper and you will see the full effect of machine-made paper.

In this, as in all other manufactures, there are different qualities. The finer may not possess all these imperfections; but, varying in degree, I have given the general characteristics, more or less of which will be found in all machine-made paper; and to this I may add, what I know will startle some great mechanics, that it is at least equally liable to the imperfection of irregularity in substance, from any inattention or want of competent skill in the attendant in supplying it with the requisite quantity of matter, with any hand-made paper; and it is possible, from my practice as a printer, to point out instances where paper has been as irregularly and indifferently wrought by the machine as it ever was by the most careless and unprincipled manual operation.

But taste is as likely to vary in paper-fancying as in any other

fancy,—after the eye and the touch have been satiated by beautiful vellum-like wire-cloth paper, without an atom of irregularity to offend either sense, taste is veering round to an imitation of the hand-sieve, or laid paper; and to accommodate all parties, this fine machine-made paper is now to undergo another process to give it an appearance of the sieve-made article, by passing through fluted rollers, and pressing it into a ribbed-like appearance, an effect the very reverse of that for which formerly so much care and trouble were bestowed to get out every particle of irregularity or roughness arising from the wire mould. This will not be very conducive to a beautiful display of the type printed upon it, nor, as I suspect, to keeping register in working. However, this, like other fashions, will have its day, and then we shall, perhaps, once more get round to that kind of paper which will do equal justice and service to bookseller, printer, and the public.

Now, after all this history, may reader my say 'Show us, then, what paper ought to be.' I answer, 'Look before you.' The paper upon which this work is printed has been made as an effort for reviving a *genuine* paper, from linen-rag. I challenge the judges of the article, who are at all acquainted, as practical men, with the processes it has to go through in printing and binding, to show any machine-made paper that can equal it, in every necessary qualification; and as to service to the purchaser (that is durability), if that may be allowed any weight in the reckoning, I am certain time will prove that the one will bear no comparison with the other.

The great price which rags acquired some few years since, in consequence of the great increase of printing and the paper trade, induced many ingenious men to turn their attention to discover other materials for making paper. A very large manufactory was established some years ago, in London, for making straw-paper at Mill Bank, by the river-side, but the scheme proved abortive, and the premises were lately disposed of.

In 1802, Mr. Matthias Koop invented the following method of making straw-paper, for which he obtained a patent. For each pound of straw, or hay, a pound or a pound and a half of quicklime is to be dissolved in about a gallon or six quarts of river water. The hay, or straw, is to be cut into portions about two inches in length, then boiled in a considerable quantity of water,

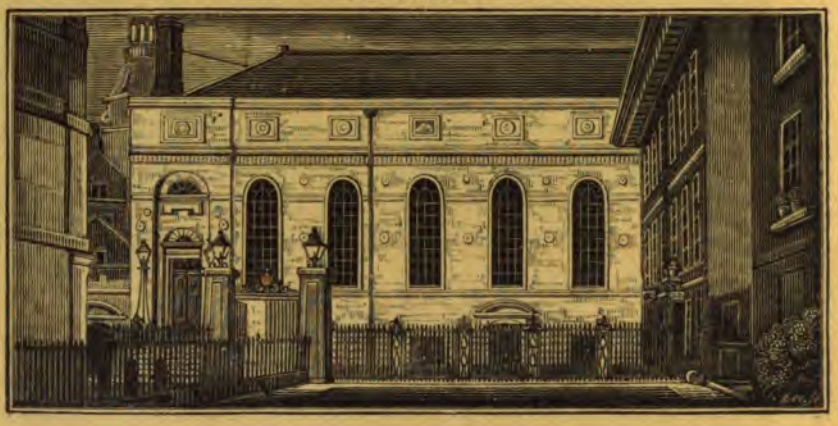
viz. about two gallons to a pound of materials, for three quarters of an hour. It is then to be macerated in the solution of lime and water for five, six, seven, or more days, taking care to agitate the mass by frequently stirring and turning it over. At the end of this time the lime-water is to be drawn off, and the materials to be washed very clean, then boiled in a large portion of clean river water. This part of the operation is to be repeated; and, for the sake of improving the colour of the paper, one pound of dissolved crystal of soda, or pot-ash, may be used to every thirty-six pounds of straw or hay. When the materials are pressed out of the water, the manufacture of them into paper may be proceeded with by the usual and well-known processes. In some cases, the patentee has thought it advisable to suffer the materials to ferment and heat before they were reduced to a pulp, as was formerly the case with the rags for paper-making. This, however, will always depend upon the warmth of the season.

When thistles are used, they are to be cut down when the bloom begins to fall, to be dried, and reduced into lengths of two inches; and then the same process to be made use of, as has been already described with regard to the straw and hay.

STATIONERS HALL:

Ancient.

Modern.



Seal.

HISTORY

OF THE

STATIONERS' COMPANY,

THEIR

CHARTERS, HALL, GIFTS, DONATIONS, &c. &c.

SECTION VI.

The Stationers' Company:—Their Antiquity—Their Halls—Description of the present—Its Site—Elevation—Great Room—Court Room—Stock Room—Paintings—Stained Glass—Anecdote of Alfred and the Pilgrim—Escape of Mary, Queen of Scots—Portraits—Government, Charters, Grants, &c. of the Company—Powers formerly exercised by them—Mode of Appointment of Court and Officers—Renter-Wardens—Stock—How rose and divided—Dividends—Widows—Charitable Donations.

THE COMPANY OF STATIONERS, or TEXT-WRITERS, who wrote and sold all sorts of books then in use, namely, A, B, C, or, by quick pronunciation, *Absies*, with the Pater-noster, Ave Mary, Creed, Graces, &c. dwelt in and about Pater-noster Row: hence we have, in that neighbourhood, Pater-noster Row, Creed-lane, Amen-corner, Ave-maria-lane, &c. all places of clerical allusion.* This fraternity was of great antiquity, even before the Art of Printing was invented; and notwithstanding all the endeavours that have been made, no privilege or charter has as yet been discovered, though several of the old printers are said to be of the Stationers' Company, nor can we find what authority

* Stow, in his Survey of London, edition 1598, says, also turners of beads, who were called, Pater-noster makers, as may be seen in a record of one Robert Nikke, Pater-noster maker, and citizen, in the reign of Henry IV, &c.

they had granted them, with relation to printed books, as an incorporated body, till the Charter of Philip and Mary in the year 1556.

By the authority of the Lord Mayor and Court of Aldermen, the Stationers were formed into a Guild, or fraternity, in the year 1403, the fourth year of King Henry IV. and had then ordinances made for the good government of their fellowship, as appears by a Memorial presented by the Company to the Lord Mayor and Court of Aldermen, in 1645; in which they state that their Brotherhood, or Corporation, had then been governed by wholesome Ordinances for the space of two hundred and forty years. Thus constituted, they regularly assembled, under the government of a master and two wardens. Their first Hall was in Milk-street,* but, in 1550, they began to turn their thoughts to a removal of their Hall, and to a more substantial incorporation, and purchased the site of a college, called *St. Peter's*, at the south-west corner of St. Paul's Churchyard, and, about 1553, adapted the old building to their own purposes. A causeway led directly from this hall to the door of St. Paul's Church. The fitting up of the new Hall, which was a large building, was defrayed by the voluntary subscriptions of the several members. Amongst other benefactions, *sixteen glazed windows* were contributed, and also the wainscoting both of the parlour and the council chamber.† In, or about 1611, the Company thought proper to remove from their old Hall to the situation they now occupy, and, on the 11th of April, 1611, the purchase of BERGAVENNY HOUSE was ordered to be paid for from the stock of the partners in the privilege. That house is described by Stow, p. 649, edit. 1618, as "one great house, builded of stone and timber, of old time pertaining to John, Duke of Britaine, Earle of Richmond, as appeareth by the records of Edward the Second. Since that it was called *Pembrooke Inne*, neere unto Ludgate, as belonging to the Earles of

* The Company still possess two houses in Wood-street, and three in Friars-alley and Clement's-court, in Milk-street, built after the fire of London, on the site of their original Hall.

† Nic. 18 Ct. iii. 544, 545, 555. In 556, *et seq.* is given some curious particulars of "all such stuffe, with other thyngs, as dothe appertayne to this howse" in 1557, and the expense of the first public dinner at the Hall, in 1557.

Pembrooke, in the times of Richard the Second, the eighteenth yeere, and of Henry the Sixt in the fourteenth yeere. It was afterwards called *Aburgavenny House*, and belonged to Henry, late Lord of *Aburgavennie*. But the worshipful Company of Stationers have since that purchased it, and made it the Hall for the meeting of their Societie, converting the stone-worke into a new faire frame of timber, and applying it to such serviceable use as themselves have thought convenient for the amending it in some particulars in which it had been found defective.

"The preceding owners," Mr. Pennant says, "might boast of their *nobility*, their successors of their *wealth*, for the loss sustained by this company in the fire of London, Lord Clarendon computed was not less than two hundred thousand pounds."

In 1666, the Hall shared in the dreadful conflagration of the fire of London, and the first Court, Oct. 2, after that calamity was held in Cooke's Hall, and afterwards at St. Bartholomew's Hospital, in the *Lame Hospital Hall*. In December following, all the ruined ground, as well belonging to the Hall as to the other tenements of the Company, was ordered to be cleared and measured; and in March 1668-9, the re-erection was so far proceeded in, that the new-built warehouse was used for the meetings till the Hall should be finished, which was going on in 1670.

I have the opportunity of preserving a view of the old Hall, as it appeared prior to its receiving the present front, not by the ordinary means of having an engraving done "expressly for the work;" but from a curious relic—the *real original* block—which, while it presents a resemblance of the old elevation, furnishes at the same time, a specimen of wood-engraving of former days. Many who, as I flatter myself, will turn over the pages of this work, will recognize the edifice in its old garb, and recollect where this engraving used to be displayed. And having looked on "that picture," may now look "on this"—and view it in its present state.

The Company appear to have granted the Hall for various occasional purposes; in 1677, to the Parish of St. Martin's, Ludgate, for a year and a half, to read divine service and preach in. In 1684, the Music Feast on St. Cecilia's day (and in several subsequent, though not regular years) was held in this Hall. In 1685 (Sept. 12), an order was made (or renewed), for the Clerk to

have the letting of the Hall for Feasts and Funerals, with the consent of the Master and Wardens for the time being, as by order Sept. 26, 1676. But the Company appear to have been staunch to the Established Church, as in August 1688, the application of a Nonconformist Minister, with the Elders of his Church, for the use of the Hall as a meeting place, was refused.*

Mr. Malcolm, the modern historian of London, describes the situation of the present Hall, as abutting to the West on the old City wall, and separated from Ludgate Street, on the South, by St. Martin's Church; bounded on the North by the houses of the Residentiaries of St. Paul's; and opening on the East, to the passage called Stationers' Alley, on which side it has a paved court-yard, handsomely railed; a circular flight of stone steps leading to the grand entrance on the left. The basement story, and some other parts of the building, serve as warehouses for the Company's stock of printed books; and for the stock of such individual members as choose to rent them. Sufficient room, however, is reserved for an excellent kitchen and other offices. The front has a range of large arched windows, an ornamental entrance, a neat cornice, and pannels of *bas reliefs* above it. A flight of steps leads to the great room, which is entered through the arch of a screen of the composite order, with a pediment; the Company's arms and rich ornaments, finely carved, distributed in the intercolumniations and other appropriate places. The room is surrounded by oak wainscoat; and a court cupboard of antique origin, supports the Hall plate on gala days; at the North end is a large arched window, entirely filled with stained or painted glass, the border and fan of which are very vivid and splendid. Seven compartments are filled with the arms of London, the Royal arms, the Company's arms, their crest, the arms of the Cadell family, and two emblematic figures designed by Smirke. That on the left (of the spectator), is a winged female figure, seated, with a flame

* Moxon, writing in 1683, says, "The printers of London, masters and journeymen, have every year a general feast, which since the re-building of Stationers' Hall, is commonly kept there."—See the whole history and account of this feast, *post*.

These feasts are now confined to such members as are of the Livery; not regarding the particular branch of the Stationers' art and mystery to which they may belong.

STATIONERS' HALL.

The carved oak Screen at the entrance to the Hall.

To face page 240

issuing from her head; but it may be observed, *en passant*, that this figure would have had a more modest and pleasing effect, if the drapery had been a little higher up the body. In the back ground is a circular temple; the whole intended to be allegorical of learning, as the path to fame and honour. The figure on the right is also female, but upon which the eye and imagination may dwell with much more pleasure than upon the other; she is seated, contemplating the Holy Scriptures, while the whole seems lighted by a lamp over her head, which throws a warm tint over the compartment; at the bottom is the following inscription: "This window (except the arms and crest* of the Company,

* I have some reason for doubting the accuracy of this assertion relative to the Crest; at least according to the laws of heraldry. Soon after the incorporation of the Company, in 1556, armorial bearings were granted by sir Gilbert Dethick, *Garter*, which, at a subsequent heraldic visitation, in Sept. 1634 (Adam Islip being then master of the Company) were again recorded in the Heralds' College. The blazon is as follows: *Azure, on a chevron between three bibles with leaves and clasps Or, an eagle volant Gules with a diadem of the second between two roses of the third barbed and seeded Vert: in chief, the rays of the sun issuing from a cloud proper, therein a dove (intending to represent a holy spirit) displayed Argent with a diadem Or.* Neither in the grant by sir G. Dethick, in 1556, nor on occasion of the record at the visitation of 1634, is there any mention of crest or supporters. Mr. Nichols (Anecdotes of 18th Cent. vol. iii. p. 567) describes the crest thus, "On a wreath, a bible, open, proper, clasped and garnished Or. Motto—*Verbum Domini manet in æternum.*" And this was used over the arms at the head of the annual lists of the Company down to the year 1789. The carved work about the Hall, and the composition ornaments on the cornice and ceiling of the Court-room, are repetitions of the same, surmounted with an eastern crown; and the ancient silver badge and staff of state borne by the beadle has this bible with a crown as a crest, but I have not been able to find any authority under which either the crest or the supporters were assumed. Equally fruitless has been my endeavour to ascertain the time or motive for the change of the crest to this eagle, as displayed in the window above-mentioned, and which was first used in the list of 1790, and in all the drawings of the arms subsequent to that period. Probably neither crest nor supporters, having been granted by the College of Arms, they were adopted and changed at the pleasure of the rulers of the Company. The motto was first used in the list of 1788.

In searching after the crest, I found that the visitation in 1634 recorded also the Common Seal of the Company: I shall give a fac-simile sketch of it as there entered, although the seal used by the Company is only the arms, as above described.

which for their excellence and antiquity it has been thought adviseable to preserve), was the gift of Thomas Cadell, Esq., Alderman and Sheriff of London."

A spacious gallery, for music and spectators, under which is the entrance to the Hall at the South end, appears supported in front by the finely-carved oak screen mentioned in page 240.

A door on the West side leads, through an anti-room, to the Court-room, a superb apartment, with four large windows. The arched ceiling commences on a composite cornice, and the ornaments in stucco on it, are very elegant. At the West end, over the Master's chair, is Mr. West's painting* (presented by Mr. Boydell), of Alfred the Great dividing his last loaf with the pilgrim.† The beauty of the females, the benevolent placid features of Alfred, and the regret expressed by the infants at the loss of their food, are well known to the public through the fine print engraved from it by Sharp.

On the left of this painting is a portrait (by Sir Wm. Beachey), of "William Strahan, Esq. master of the Company, 1774."

* One of his earliest performances; I have been told, about the third.

† While the Danes were ravaging all before them, Alfred, with a small company, retreated to a little inaccessible island in Somersetshire, called Athelney; where his first intention was, to build a fortress: thither he afterwards moved his family, whose security gave him the most anxious concern. The principal inconvenience he laboured under in this forlorn situation, arose from a scarcity of provisions. It happened one day as he was reading, that he found himself disturbed by a poor pilgrim, who with the greatest earnestness begged for something to satisfy his hunger, the humane king (whose attendants had been sent out in search of food), called to Elswitha, and requested her to relieve the miserable object with a part of what little there remained in the fort; the queen finding only one loaf, brought it to Alfred, but at the same time represented to him the distresses that the family would be driven to should the attendants prove unsuccessful. The king, however, not deterred, but rather rejoicing at this trial of his humanity, divided the loaf, and gave to the poor Christian half of it: consoling the queen with this pious reflection, "That he who could feed five thousand with five loaves and two fishes, could make, if it should so please him, the half of a loaf suffice for more than their necessities;" the pilgrim departed; the king resumed his studies; and felt a satisfaction that ever results from beneficent actions. His attendants returned with a vast quantity of fish, which greatly encouraged the king, and put him upon those glorious undertakings which restored the lustre of the Saxon diadem.

On the right (by Mr. Owen), of "Andrew Strahan, Esq. M.P. 1816."

On the right of the chimney-place is a portrait (by the same artist), of "Sir WILLIAM DOMVILLE, bart. master of this Company in 1804, lord mayor of London, 1814; in the robe in which he rode before his royal highness the prince regent, the emperor of Russia, and the king of Prussia, and the other illustrious personages who dined at Guildhall, 18th June, 1814, and again before the prince regent attended by both Houses of Parliament, to St. Paul's cathedral, on the public thanksgiving for peace, 7th July, 1814.

On the other side of the chimney-place a portrait, painted by Graham. The history of this picture is rather curious. It was originally much larger than at present, and contained a considerable portion of allegorical flattery; however, in order that the two pictures should correspond in size, that of Alderman Boydell has been considerably diminished in the lower part, most of the allegory painted out, and filled up with subject more appropriate.

A door opposite to and corresponding with that on the west side leading to the Court-room, opens to another large and convenient room, denominated the Stock-room, in which the trading business of the Company is transacted, the dividends paid, and the overflowing company from the Hall, on days of feasting, accommodated. It is ornamented with the following pictures, &c.

Tycho Wing. This celebrated composer of almanacks is represented as possessing very lively and expressive features, which are well painted, and with considerable warmth of colouring. His right hand rests on a celestial sphere, his collar is open, and a loose drapery covers his shoulders.

A scarce engraving of his relation, *Vincent Wing;* another of *Lilly*, the astrologer.

Portraits (size of life), of Mr. Richardson, author of Pamela, &c., and his lady.

Prints of Earl Camden, and of Alfred, from the painting in the Court-room.

An exceedingly good portrait of "Matt. Prior, ob. 1721, ætat. 57;" the features full of animation and vivacity.

A companion to the last, Sir Richard Steele; the picture of Steele exhibits a large man, inclined to corpulency, with handsome

dark eyes and brows, with a velvet cap on his head, and his collar open. They were formerly part of the collection of Edward Earl of Oxford, and were painted, it is believed, by Kneller.

A half length of Bishop Hoadly, an excellent portrait, given by the will of Mrs. Beata Wilkins, in 1773, according to the desire of her husband, who said "his (the bishop's) principles were founded on the Gospel; that he was a true Protestant; and had always been a firm friend in the cause of liberty, religious and civil," directing her executors to cause it to be framed in a handsome manner, to be put up in some conspicuous part of Stationers' Hall. The bishop is habited in his robes, as Prelate of the Order of the Garter. He appears to have been more than sixty when the painting was made, and has pleasant features, shaded by a moderate-sized powdered wig.

At the East end of the room is the bust of Mr. Bowyer, under which is a brass plate, thus inscribed, in his own words, in conformity to a wish he had many years before communicated to his partner:—

To the united Munificence of
THE COMPANY OF STATIONERS,
and other numerous Benefactors;
who,
when a calamitous Fire, Jan. 30, 1712-13,
had in one night destroyed the Effects
of WILLIAM BOWYER, Printer,
repaired the loss with unparalleled Humanity:
WILLIAM, his only surviving Son,
being continued Printer of the Votes of the House of Commons,
by his Father's Merits,
and the indulgence of three Honourable Speakers;
and appointed to print the Journals of the House of Lords,
at near LXX years of age,
by the Patronage of a noble Peer;
struggling with a debt of gratitude which could not be repaid,
left this Tablet to suggest
what worn-out Nature could not express.

Ex Voto Patroni Optimi Amicissimi
Poni Lubenter Curavit Cliens Devinctus
J. Nichols, M.DCC.LXXVIII.

Archbishop Chichley, the venerable founder of All Soul's College, a fine old picture on board.

A portrait of "William Bowyer, Printer, born July, 1663, died Dec. 27, 1737." He had been many years a valuable member of the Company of Stationers, and appears to have been a pleasant round-faced man.

"Robert Nelson, born June 22, 1656, died Jan. 10, 1714-15." The excellence of this pious author's life, evinced by various admonitory publications, gave his features great placidity, which, added to their beauty, has enabled Sir Godfrey Kneller to present us with a most engaging likeness.

On the East side of the Hall, over the steps leading to the room last-mentioned, is a large picture of Mary, Queen of Scots, escaping from Lochlevin Castle, by the assistance of George Douglass,* painted by Graham, presented by Mr. Boydell. Of this painting Malcolm† says, "All contemporary authors agree in ascribing to Mary the utmost beauty of countenance and elegance of shape of which the human form is capable. Her hair was black, though, according to the fashion of that age, she frequently wore borrowed locks, and of different colours; her eyes were a dark grey, her complexion was exquisitely

* There was in the castle of Lochlevin, a young gentleman called George Douglass, the brother to her keeper; he was not more than eighteen years of age. To him she paid a flattering attention. Her engaging manners, her misfortunes, her beauty, her smiles, won him completely to her interest. She opened her mind to him; and even insinuated that she might tender her hand as the reward of his service and fidelity. His heart was big with love, generosity, and the spirit of adventure. By his means she corresponded with her friends, and prepared them for her enterprize. Upon the second day of May, 1568, about seven o'clock in the evening, when her keeper was at supper with his family, George Douglass, possessing himself secretly of the keys of the castle, hastened to her apartments. He conducted her out of her prison. She felt herself to be again a queen. He locked the gates of the castle behind him to prevent a sudden pursuit. They flew to the lake, entered the boat that was in readiness for them, and were instantly rowed to the opposite shore. There she was received by the lord Seton, with a chosen band of horsemen in complete armour. That night he conveyed her to his house at Niddre, in West Lothian, she rested a few hours, and set out for Hamilton." *Stuart's Hist. of Scot.* 8vo. i. 298.

† *Londinum Redivivum*, vol. iv, p. 375.

fine, her hands and arms remarkably delicate, both as to shape and colour; her stature was of an height that rose to the majestic. 'No man,' says Brantome, 'ever beheld her person 'without admiration and love; or will read her history without 'sorrow.' There is little to praise in this effort of Mr. Graham's pencil, who has totally failed in delineating the beauty of the unfortunate queen. He that has seen the portrait of Mary in the hall of the Scottish Corporation in Crane-court, Fleet-street, will immediately discover that Mr. Graham's Mary rather resembles a modern truant Miss escaping from a boarding-school with a Scotch soldier to Gretna Green, than a queen of majestic front."

FIRST CHARTER OF THE STATIONERS' COMPANY, 1556.

The CHARTER *granted to the Company of* STATIONERS, *on the 4th day of May, in the year* 1556, *and in the Third and Fourth of Philip and Mary, being a True Copy of the Original Record remaining in the Chapel of the Rolls.—Examined, and translated from the original Latin Copy, by Mr. Henry Rook, Clerk of the Rolls.**

The King and Queen to all those to whom these Presents shall come, greeting :—

I. Know ye that we considering and manifestly perceiving that several seditious and heretical books, both in verse and prose, are daily published, stamped, and printed, by divers scandalous, schismatical, and heretical persons, not only exciting our subjects and liegemen to sedition and disobedience against us, our crown and dignity, but also to the renewal and propagating very great and detestable heresies against the faith and sound Catholic doctrine of holy mother, the church,† and being willing to provide a proper remedy in this case.

* The following extracts from their Records will show the expense of obtaining this charter:—

"The chargis layde oute for our Corporation.

Fyrste, for two tymes wrytinge of our boke before yt was sygned by the Kynge and the Quene's Majestie's Highness	0	18	0
Item, for the sygned and the prevy seale	6	6	8
Item, for the great seale	8	9	0
Item, for the wrytynge and inrolynge	3	0	0
Item, for wax, lace, and examenacion	0	3	4
Item, to the clerkes for expedycion	0	10	0
Item, for lymnynge and for the skyn	1	0	0
Item, payed to the screvener, for wrytinge of the indentures of the surrender for the feffers of truste unto the master and wardyns of this companye and thayre successors	0	14	0
	21	1	0

† These were the regulations of a *Catholic* princess; but an equal authority was given by her *Protestant* successors, who must certainly have had a very different opinion of *seditious* and *heretical books*. *Nich. Orig.* 163

II. We, of our own special favour, certain knowledge, and mere motion, do will, give, and grant for ourselves, our heirs and successors of the above-mentioned queen, to our beloved and faithful liegemen,

THOMAS DOCKWRAY (Master)

JOHN CAWOOD, HENRY COKE (Keepers or Wardens)

(The Freemen or Commonalty, 94 names),

freemen of the mystery or art of a stationer of our city of London, and suburbs thereof, that from henceforth they may be, in deed, fact, and name, one body of itself for ever, and one society corporated for ever, with one master and two keepers or wardens, in the society of the same mystery or art of a stationer of the city aforesaid, and that they may enjoy a perpetual succession.

III. And further, We of our own special favour, certain knowledge, and mere motion, do by these presents ordain, create, erect, make, and constitute the aforesaid Thomas Dockwray the master of the same mystery or art of a stationer of the aforesaid city for one year next ensuing; and the aforesaid John Cawood and Henry Cooke, the keepers or wardens of the same mystery or art of a stationer, of the aforesaid city, for one year next ensuing; and we by these presents do make, create, and constitute the foresaid ninety-four persons the commonalty of the said mystery or art of the city aforesaid.

IV. And further, We ordain, create, erect, make, and constitute, by these presents, the aforesaid master and keepers, or wardens and commonalty, one body, in deed and name, of themselves for ever, and one society for ever corporate with one master and two keepers or wardens and the commonalty of the same mystery or art of a stationer of the city of London aforesaid. And we do incorporate the same master, keepers, or wardens and commonalty, and by these presents we do really and fully will, grant, create, erect, ordain, make, declare, and constitute the said master and keepers, or wardens and commonalty, a body corporate, to continue for ever, by the name of the master and keepers, or wardens and commonalty of the mystery or art of a stationer of the city of London: and that the same master and keeper, or wardens and commonalty, may from henceforth have a perpetual succession: and that the master and keepers, or wardens and commonalty, and their successors for ever may be styled, intitled, and called by the name of the master and keepers, or wardens and commonalty of the mystery or art of a stationer of the city of London: and that they may be able to plead and to be impleaded, to answer and to be answered by that name in all and singular matters, suits, and plaints, actions, demands, and causes, before any of our judges and justices whomsoever in any courts or places whatsoever: and that they may have a common seal to serve and to be used for their affairs and business; and for the sealing of all and singular their deeds and writings any wise touching or concerning their affairs and business.

V. And that the same master and keepers, or wardens and commonalty, and their successors, may from time to time make, and ordain, and establish,

for the good and well ordering and governing of the freemen of the foresaid art or mystery, and of the foresaid society, ordinances, provisions, and laws, as often as they shall see proper and convenient.

VI. Provided that those ordinances, provisions, and laws, be in no wise repugnant or contrary to the laws and statutes of this our kingdom of England, or in prejudice to the commonweal of our same kingdom.

VII. And that the same and their successors for ever are enabled and may lawfully and safely, without molestation or disturbance of us, or the heirs or successors of our foresaid queen, or of any other person, hold, as often as they please, lawful and honest meetings of themselves for the enacting such laws and ordinances, and transacting other business for the benefit of the same mystery or art, and of the same society, and for other lawful causes in the manner aforesaid.

VIII. And that the foresaid master and keepers, or wardens and the commonalty of the said mystery or art of a stationer, of the foresaid city, and their successors, or the greater part of them being assembled lawfully and in a convenient place, may yearly for ever, or oftener, or seldomer, at such times and places within the said city, as they shall think fit, choose from amongst themselves, and make one master and two keepers, or wardens, of same mystery or art of a stationer of the foresaid city, to rule, govern, and supervise the foresaid mystery and society, and all the men of the same mystery, and their business; and to remove and displace the former master and the former keepers, or wardens, out of those offices, as they shall see best.

IX. And that if, and as often as, it shall happen in any election that the master and keepers, or wardens, and the foresaid commonalty, are equal in votes, one part against another, in such an election, that then, and so often, the master of the foresaid mystery, if there shall be then any master, or the upper keeper or warden of that mystery, if there shall then be no master, may have two votes in such elections.

X. And that the master and keepers, or wardens, and commonalty of the foresaid mystery, and their successors for the time being shall be deemed fit and able persons in law as well to give, grant, and to let their lands and tenements, possessions, goods, and chattels, as to purchase, possess, take, and receive for themselves and their successors, lands, tenements, possessions, goods, chattels, and inheritances to be had, enjoyed, and possessed by themselves and their successors for ever, the statute against putting lands and tenements in mortmain, or any other statute, act, or ordinance to the contrary notwithstanding.

XI. Provided that the said lands, tenements, and inheritances, so to be purchased and to be possessed by them, be within our said city of London, or suburbs, or the liberties of the same city; and so that they do not in any wise exceed the yearly value of twenty pounds of lawful money of England.

XII. Moreover, We will, grant, ordain, and constitute for ourselves and the successors of our foresaid queen that no person within this our kingdom of England, or dominions thereof, either by himself or by his journeymen,

servants, or by any other person, shall practise or exercise the art or mystery of printing or stamping any book or any thing to be sold or to be bargained for within this our kingdom of England, or the dominions thereof, unless the same person is or shall be one of the society of the foresaid mystery or art of a stationer of the city aforesaid, at the time of his foresaid printing or stamping; or has for that purpose obtained our licence or the licence of the heirs and successors of our foresaid queen.

XIII. Moreover, We will, grant, ordain, and constitute, for ourselves, the heirs and successors of our said queen, to the foresaid master, keepers, or wardens and the commonalty of the mystery or art of a stationer of the foresaid city of London, and to their successors for ever, that the foresaid master and keepers, or wardens, and their successors for the time being, shall very lawfully as well search, as often as they please, any place, shop, house, chamber, or building, of any stamper, printer, binder, or seller, of any manner of books within our kingdom of England, or dominions thereof, concerning or for any books or things printed, stamped, or to be printed or stamped, and to seize, take away, have, burn, or convert to the proper use of the said society all and singular those books and those things, which are or shall be printed or stamped contrary to the form of any statute, act, or proclamation made or to be made.

XIV. And that if any person shall practise or exercise the foresaid art or mystery contrary to the form above described; or shall disturb, refuse, or hinder the foresaid master and keepers, or wardens, for the time being, or any one of them for the time being, to make the foresaid search, or to seize, take away, or burn, the foresaid books or things, which are, or any one of which has been printed or stamped, or are to be printed or stamped, contrary to the form of any statute, act, or proclamation, that then the foresaid master or keepers, or wardens for the time being, shall imprison or send to gaol, or either of them, shall imprison or send to gaol every such person so practising or exercising the foresaid art or mystery contrary to the form aforesaid, or so that, as aforesaid, the disturber, refuser, or hinderer, shall there remain without bail or mainprize for the space of three months; and that the same person so practising the art or mystery aforesaid contrary to the said form, or so that, as aforesaid, the disturber, refuser, or hinderer shall pay or cause to be paid for every such practising or exercising as aforesaid, contrary to the said form, and for every such disturbance, let or hinderance, one hundred shillings of lawful money of England, one moiety thereof to us, our heirs, and successors of the foresaid queen, and the other moiety thereof to the foresaid master, keepers, or wardens and commonalty, &c. In witness whereof, the King and Queen at Westminster, May 4. By Writ of Privy Seal, &c.

Queen Elizabeth, upon her first coming to the crown, by her Letters renewed and confirmed the foregoing charter, in the following manner:—

RENEWAL OF THE CHARTER BY ELIZABETH. 1558.

The Queen, to whom these Presents, &c.

Greeting:

We have seen the Letters Patents of the Lord Philip, King, and the Lady Mary, late Queen of England, our most dearly beloved sister, to the master, keepers, or wardens and commonalty of the mystery or art of a stationer of our city of London, lately granted at Westminster on the fourthe day of May, in the 3rd and 4th years of their reigns:

[Here the Charter is recited verbatim, as it was granted by Philip and Mary, printed in the preceding pages, and then confirms the same in the following words.]

And we ratifying and allowing the foresaid letters, and all and every thing contained therein, do, as much as in us lies, accept and approve them for ourselves, our heirs, and successors, and do ratify and confirm them to our beloved Reynold Wolfe, now the master of the foresaid mystery or art of a stationer, and Michael Lobley and Thomas Duxwell, the keepers or wardens of the same mystery, and to their successors, in such manner as the foresaid recited charter and letters do reasonably in themselves testify. In witness whereof, &c. The Queen at Westminster, on the tenth day of November, and in the first year of our reign.

Besides this confirmation by Queen Elizabeth, the charter by Philip and Mary was exemplified in the 19th year of Charles II. on the 10th of August, 1667, at the request of Humphry Robinson, the then master, and Evan Tyler and Richard Royston, the then wardens of the company. But in 1684 Charles II. granted, or perhaps rather forced, a charter containing some additions which the then reigning mode of paving the way to arbitrary power seems to have dictated. Such an abstract is here given of this charter as will sufficiently show its nature.

CHARTER BY CHARLES II

The KING, to all those to whom these Presents shall come, greeting:—

I. Whereas King Philip and Queen Mary by their Letters Patents sealed with their Great Seal of England, dated at Westminster on the fourth day of May in the third and fourth years of their reigns, have for themselves and the heirs and successors of the said queen, given and granted to their beloved and faithful liegemen, Thomas Dockwray, John Cawood, Henry Coke, William Bonham, and to divers other persons named in the same letters patents, being freemen of the mystery or art of stationers of the city of London and suburbs thereof, that they in deed, fact, and name, shall be one body of themselves

for ever, and one perpetual society corporate of one master and two keepers, or wardens, in the society of the same mystery or art of stationers of the city aforesaid; and that they might have a perpetual succession.

[Here the remainder of the charter is in the same manner recited, in clauses II. to XVI.]

XVII. Whereas our beloved subjects, the master and keepers, or wardens and commonalty, of the mystery or art of stationers of the city of London have humbly besought us that we, by our letters patents, under our own great seal of England, would be graciously pleased to ratify and confirm the fore-cited letters patents, and all the liberties, franchises, and privileges contained therein. And,

XVIII. Further have also besought us, that by the same our letters patents such provisions might be made in them that the governing part of them, the aforesaid master and keepers, or wardens and commonalty, of the mystery or art of stationers of the city of London, and also the clerk of the same society should for the future be such person as we might account faithful and obedient to us, our heirs and successors; and that after the election of all such persons into any place of government in the society aforesaid, such person upon just complaint to be made to us, our heirs, and to our successors in our council, might be liable to be removed by an order of our council: and that they shall immediately thereupon proceed to the election of some other fit person in his or their place or places.

XIX. We, therefore, willing and desiring the safety of our beloved subjects, the master and keepers, or wardens and commonalty of the mystery or art of stationers of the city of London, do, of our special grace, certain knowledge, and mere motion, for us, our heirs, and successors, ratify, allow, approve and confirm to the foresaid master and keepers, or wardens and commonalty of the mystery or art of stationers of the city of London, and to their successors for ever, the foresaid fore-recited letters patents, and all and singular the concessions or grants, liberties, privileges, franchises, and immunities, specifically contained in the same letters patents under the provisions and regulations mentioned hereafter in these our letters patents.

These unjust and illegal additions were all subsequently repealed and declared null and void by a special act of parliament in the second year of King William and Queen Mary (1690); which act again absolutely confirms the original charter by Philip and Mary, in the following words:—

And be it enacted by the authority aforesaid, that all and every of the several companies and corporations of the said city shall from henceforth stand and be incorporated by such name and names, and in such sort and manner, as they respectively were at the time of the said judgment given, and every of them are hereby restored to all and every the lands, tenements, hereditaments, rights, titles, estates, liberties, powers, privileges, precedencies,

and immunities, which they lawfully had and enjoyed at the time of giving the said judgment; and that as well all surrenders, as charters, letters patents, and grants for new incorporating any of the said companies, or touching or concerning any of their liberties, privileges, or franchises, made or granted by the said late King James, or by the said King Charles the Second, since the giving of the said judgment, shall be void, and are hereby declared null and void, to all intents and purposes whatsoever. 2 W. & M. sess. 1. cap. 8, § 14.

Thus the charter of Philip and Mary, 1556, renewed by Elizabeth, 1559, exemplified in 1684, and confirmed by William and Mary in 1690, is the existing charter of the Stationers' Company.

We shall now give a copy of the Grant, or Constitution, which made the STATIONERS a LIVERY COMPANY of the City of LONDON:—1560.

HENSELL, MAYOR.

Jovis 1° die Februarii, anno secundo Dominæ Elizæ Reginæ, &c.

It was this day ordered and agreed, at the earnest suit and prayer of John Cawood, and divers other said persons being freemen of this city in the fellowship of the stationers, that the same fellowship from henceforth shall be permitted and suffered to have, use, and wear a livery and livery-hood in such decent and comly-wise and order as the other companies and fellowships of this city, after their degrees, do commonly use and wear; and that they, the said stationers, shall cause all such, and as many of their said fellowship as conveniently may be able, to prepare and make ready the same liveries with speed, so that they may from henceforth attend and wait upon the lord mayor of this city, at all common shews hereafter to be made by the citizens of the city, in such and like manner and sorte as the other citizens of the said citie, in such and lyke manner and sorte as the other citizens of the said city, for the honour of the same citye so long tyme past, have done, and yet dayley do, as occasion shall require.

STAR-CHAMBER DECREES FOR REGISTRY, RESTRICTION, AND CENSORSHIP OF THE PRESS.

Decrees of the Lords in the Star-chamber, touching Printers, Stationers, &c. 23 *Junii, Eliz.* 28, 1585. *Orders for them sent to Archbishop Whitgift.*

Whereas sundrie decrees and ordinances have, upon grave advice and deliberation, been made and published for the repressing of such great enormities and abuses as of late (most men in tyme past) haue been commonlye used and practised by diverse contemptuouse and disorderly persons, professing the

arte or misterie of printing and selling of books; and yet, notwithstanding the said abuses and enormities are nothing abated, but (as is found by experience) doe rather more and more increase, to the wilful and manifest breach and contempt of the saide ordinances and decrees, to the great displeasure and offence of the queen's moste excellent majestie; by reason whereof sundrie intolerable offences, troubles, and disturbances, have happened, as well in the church as in the civile government of the state and commonweale of this realme, which seem to have growen, because the paynes and penalties, conteyned and sett downe in the same ordinances and decrees, have been too light and small for the correction and punishment of so grievouse and heynouse offences, and so the offenders and malefactors in that behalfe, have not been so severely punished, as the qualitie of their offences hath deserved: her majestie, therefore, of her moste godlie and gracious disposicion, being careful that speedie and due reformacion be had of the abuses and disorders aforesaid, and that all persons using or professing the arte, trade, or mysterie of printing, or selling of books, should from henceforth be ruled and directed therein by some certeyn and knowen rules, or ordinances, which should be inviolablie kept and observed, and the breakers and offenders of the same to be severely and sharplie punished and corrected, hathe straytly charged and required the most reverend father-in-God, the archbishop of Canterburie, and the right honourable the lordes, and others of her majesties privy council, to see her majesties said most gracious and godlie intention and purpose to be dulie and effectuallie executed and accomplished. Whereupon the said most reverend father, and the whole present sitting in this honourable cowrte, this 23rd day of June, in the twenty-eighth year of her majesties reign, upon grave and mature deliberation, have ordeyned and decreed that the ordinances and constitutions, rules and articles, hereafter following, shall, from henceforth, by all persons, be duly and inviolablie kept and observed, according to the tenor, purporte, and true intent and meaning of the same, as they tender her majesties high displeasure, and as they wyll aunswere to the contrarie at their uttermoste peril. Videlicet.

Imprimis, That every printer, and other person, or persons whatsoever, which at this tyme present hath erected, or set up, or hereafter shall erect, set up, keepe, mainteyn, or have anye printing-presse, rowle, or other instrument, for imprinting of books, chartes, ballades, pourtrayctures, paper called damask-paper, or any such matters, or things whatsoever, shall bring a true note, or certificate of the saide presses, or other printing instruments allreadie erected,* within tenne days next coming, after the publication hereof; and of

* Thus it will be seen that Mr. Pitt found, in the abominable Star-chamber practice, a precedent for the act 39 Geo. III. c. 79, "For the more effectual Suppression of Societies established for Seditious and Treasonable Purposes, and for better preventing Treasonable and Seditious Practices," when he introduced the twenty-third and subsequent clauses for fettering the press by the terrors of registration of every one who had a "press, or types for printing," founders of type, and makers of printing presses; with the printer's name upon the front of every paper, or upon the first and last leaves of every book, in legible characters (the first idea in framing the bill was, in characters not less than the body of the work!) with "the name of the city, town, parish, or place, and also the name, *if any*, of the square, street, lane, court, or place in which his or her dwelling-house, or usual place of abode shall be," under a penalty of twenty pounds for every copy, if omitted; and further a copy to be preserved of every thing so printed with the

the saide presses, or other printing instruments hereafter to be erected, or set up, from tyme to tyme, within tenn dayes next after the erecting, or setting up thereof, unto the master and wardens of the companie of stacioners, of the cittie of London, for the tyme being, upon payne that everye person fayling, or offending herein, shall have all and averie the said presses, and other instruments, utterlye defaced, and made unserviceable for imprinting for ever; and shall also suffer twelve moneths imprisonment without bayle or maynprise.

2. Item, That no printer of bookes, nor any other person or persons whatsoever shall set up, keepe, or mayntain, any presse or presses, or any other instrument, or instruments, for imprinting of bookes, ballades, charte, pourtrayctures, or any other thing or things whatsoever, but onelye in the cittie of London, or the suburbs thereof (except one presse in the universitie of Cambridge, and one other presse in the universitie of Oxforde, and no more) and that no person shall hereafter erect, sett up, or maynteyne in any secrett, or obscure corner, or place, any such presse or instrument before expressed; but that the same shall be in suche open place or places, in his or their house or houses, as the wardeins of the saide Companie of Stationers, for the tyme being, or suche other person, or persons, as by the saide wardeins shall be thereunto appointed, may from tyme to tyme have readie accesse unto, to search for and viewe the same; and that no printer or other person, or persons, shall at any time hereafter withstande, or make resistance to, or in any suche view or search, nor denye, or keepe secrett any suche presse, or other instrument, for imprinting, upon payne that every person offending in any thing contrarie to this article, shall have all the saide presses, and other printing instruments, defaced, and made unserviceable for imprinting for ever; and shall also suffer imprisonment one whole year, without bayle, or maynprise, and to be disabled for ever to keepe any printing presse, or other instrument for printing, or to be master of any printing-howsse, or to have any benefite thereby, other than onelye to worke as a journeyman for wages.

3. Item, That no printer, nor other person or persons whatsoever, that hath sett up anye presse, or instrument, for imprinting within sixe moneths last past, shall hereafter use, or occupie the same, nor any person or persons shall hereafter erect, or sett up any presse, or other instrument of printing, till the

name of the employer written or printed thereon, to be produced to any justice of the peace who shall require to see the same. This act was found pregnant with so much harassment to individuals whose conduct might be perfectly clear of intentional transgression, or evasion of the law, and calculated to afford such a harvest to the common informer, (as an instance of which, one of them, from some inadvertence or misconception of the printer, talked, in the true spirit of venal espionage, exultingly of the 5000 penalties of 20*l.* each, for omitting the name upon an annual pocket-book), that an act was passed in 1811 to restrict to twenty-five penalties, for any one and the same book, and empowering magistrates to mitigate even to 5*l.* and quarter sessions to grant still further relief. The spirit of the act was, however, followed up by the Castlereagh administration in one of those (so noted as to be denominated, *par excellence*, 'The Six Acts') of Dec. 1819, "For the more effectual prevention and punishment of blasphemous and seditious libels," authorizing the breaking open of any house supposed to contain copies of any work that the verdict of a jury had pronounced to be a libel, and to seize the whole: but it went further to seal the doom of the poor printer, for upon any second conviction, after that act passed (no matter how severe had been the punishment for the first offence) he was rendered liable to banishment from his native country, for any time which the court in its discretion might think fit to order; this Lord Castlereagh, in his tender mercy, denominated "*simple* banishment;" but if his departure should be delayed above 40 days, he then became liable to *transportation* for 14 years.

excessive multitude of printers, having presses alreadie sett up, be abated, diminished, and by death given over, or otherwise brought to so small a number of masters, or owners of printing-howses, being of abilitie and good behaviour, as the archbishopp of Canterburie and bishopp of London, for the tyme being, shall thereupon think it requisite, and convenient, for the good service of the realme, to have some more presses, or instruments for printing erected, and sett up: and that when, and as often as the saide archbishopp and bishopp, for the tyme being, shall so think it requisite and convenient, and shall signifie the same to the said master and wardeins of the saide companie of Stationers, for the tyme being; that then, and so often, the saide master and wardeins, shall (within convenient tyme after) call the assistants of the saide companie before them, and shall make choice of one, or more (as by the opinion of the saide archbishopp and bishopp, for the tyme being, need shall require) of suche persons being free stationers, as for theyr skill, abilitie, and good behaviour, shall be thought by the saide master, wardeins, and assistants, or the more parte of them, meet to have the charge and government of a presse, or printing-house; and that within fowerteen dayes next after suche election, and choice, the saide master, wardeins, and fower other at the least of the assistants of the saide companie, shall present before the high commissioners in causes ecclesiastical, or sixe or more of them, whereof the saide archbishopp, or bishopp, to be one, to allowe, and admitt everie suche person so chosen and presented, to be master and governoure of a presse, and printing-housse, according to the same election and presentment, upon payne that everie person offending contrary to the intent of this article, shall have his presse, and instruments for printing, defaced, and made unserviceable, and allso suffer imprisonment, by the space of one whole yeare, without bayle, or maynprize. Provided allwayes, that this article, or any thing therein conteyned, shall not extend to the office of the queene's majesties printer for the service of the realme; but that the said office, and offices, shall be, and continue at the pleasure and disposicion of her majestie, her heires, and successors, at all tymes, upon the death of her highnes's printer, or otherwise.

4. Item, That no person, or persons, shall imprint, or cause to be imprinted, or suffer by any meanes to his knowledge, his presse, letters, or other instruments, to be occupied in printing of any booke, worke, coppie, matter, or thing whatsoever, except the same booke, worke, coppie, matter, or any thing, hath bene heretofore allowed, or hereafter shall be allowed, before the imprinting thereof, according to the order appointed by the queene's majesties injunctions, and be first seene and perused by the archbishopp of Canterburie, and bishopp of London, for the tyme being, or one of them (the queene's majesties printer for some special service by her majestie, or by some of her highnes privie councell thereunto appoynted; and suche are, or shal be priviledged to print the bookes of the common lawe of this realme, for suche of the same books, as shal be allowed of by the two cheefe justices, and cheefe barons, for the tyme being, or any two of them, onelye excepted) nor shall imprint, or cause to be imprinted, any booke, worke, or coppie, against the

forme and meaning of any restraynte, or ordinaunce conteyned, or to be conteyned, in any statute, or lawes of this realme, or in any injunction made, or sett forthe by her majestie, or her highness privie counsell, or againste the true intent and meaning of any letters patents, commissions, or prohibicions, under the great seale of Englande; or contrarie to any allowed ordinaunce, sett downe for the good governaunce of the Company of Stationers, within the cittie of London; upon payne to haue all suche presses, letters, and instruments, as in or about the imprinting of any suche bookes, or copies, shall be imployed or used, to be defaced, and made unserviceable for imprinting for ever; and upon payne allso, that everye offender, and offenders, contrarie to this present article, or ordinaunce, shal be disabled (after any suche offence) to use, or exercise, or take benefite by using, or exercising of the arte, or feate of imprinting; and shall moreover susteyne sixe moneths imprisonment without bayle, or maynprise:

5. Item, That everie suche person, as shall sell, utter, or putt to sale wittingly, bynde, stitch, or sowe; or wittinglie cause to be solde, uttered, put to sale, bounde, stitched, or sowed, any bookes, or copies whatsoever, printed contrarie to the intent and true meaning of any ordinaunce, or article aforesaid, shall suffer three moneths imprisonment for his, or their offence.

6. Item, That it shall be lawfull for the Wardeins of the saide companye, for the tyme being, or any two of the saide companie thereto deputed, by the saide Wardeins, to make searche in all work-howses, shopps, ware-howses of printers, booke-sellers, booke-bynders, or where they shall haue reasonable cause of suspition; and all bookes, copies, matters, and things printed, or to be printed, contrarie to the intent and meaning of these present ordinances, to seaze and take to her majesties use, and the same to carrie into the Stacioners-hall in London; and the partie, or parties, offending in printing, selling, uttering, bynding, stitching, or sowing any such bookes, copies, matters, or things, to arrest, bring, and present before the said highe commissioners in causes ecclesiasticall, or some three, or more of them, whereof the said archbishop of Canterburie, or bishopp of London, for the tyme being, to be one.

7. Item, That it shall be lawfull to and for the aforesaide wardeins, for the tyme being, or any two by them appoynted, without lett, or interruption of any person, or persons whatsoever, to enter into any howsse, work-howsse, ware-howsse, shopp, or other place, or places; and to seaze, take, and carrie away all presses, letters, and other printing instruments, sett up, used, or imployed, contrarie to the true meaning hereof, to be defaced, and made unserviceable, as aforesaid; and that the saide wardeins shall so often as need shall require, call the assistants of their saide companie, or the more parte of them into their saide hall, and there take order for the defacing, burning, breaking, and destroying of all the saide letters, presses, and other printing instruments aforesaide; and thereupon shall cause all suche printing presses, or other printing instruments, to be defaced, melted, sawed in peeces, broken, or battered, at the smythes forge, or otherwise to be made unserviceable; and

the stuffe of the same so defaced, shall redelyver to the owners thereof agayne, within three moneths next after the taking, or seazing thereof, as aforesayde.

8. Item, That for the avoyding of the excessive number of printers within this realme, it shall not be lawfull for any person or persons, being free of the Companie of Stacioners, on using the trade or mysterie of printing, bookeselling, or booke-bynding, to have, take, and keepe hereafter, at one tyme, any greater number of apprentizes, than shall be hereafter expressed; that is to say, every person that hath been or shall be master, or upper wardein of the company, whereof he is free, to keepe three apprentizes at one tyme, and not above; and every person that is, or shall be under wardein, or of the liverie of the companie whereof he is free, to keepe two apprentizes, and not above; and every person that is, or shall be of the yeomanrie of the companie, whereof he is, or shall be free, to keepe one apprentize (if he himself be not a journeyman) and not above. Provided allwayes, that this ordinaunce shall not extend to the queen's majesties printer for the tyme being, for the service of her majestie, and the realme, but that he be at libertie to keepe and have apprentizes, to the number of sixe at any one tyme.

9. Item, That none of the printers in Cambridge, or Oxford, for the tyme being, shall be suffered to have any more apprentizes, than one at one tyme at the moste. But it is, and shall be lawfull, to, and for the saide printers, and either of them, and their successors, to have, and use the help of anye journeyman, beeing freemen of the cittie of London, without contradiction; any lawe, statute, or commaundement, contrarie to the meaning and due execution of those ordinaunces, or any of them, in any wise notwithstanding.

July 11, 1637.—"A decree of the Star Chamber concerning printing," was published by authority, restricting the number of printers to twenty, besides his majesty's printer, and the printers allowed for the Universities. The letter-founders were at the same time restricted to four.

The allowed printers at this time were, Felix Kingstone, Adam Islip, Thomas Purfoot, Miles Flesher, Thomas Harper, John Beale, John Legat, Robert Young, John Haviland, George Miller, Richard Badger, Thomas Cotes, Bernard Alsop, Richard Bishop, Edward Griffin, Thomas Purslow, Richard John Raworth, Marmaduke Hodkinsonne, John Dawson, John Parsons. The letter founders; John Grismand, Arthur Nichols, Thomas Wright, Alexander Fifeild.—Nich. iii, 575.

Books yeilded into the hands and dispositions of the Master, Wardeins, and Assistants of the mysterye of the STATIONERS of London, for the reliefe of the poore of the saide Companie, according to the discretion of the Master, Wardeins, and Assistants, or the more parte of them.

Mr. Baker, her majesties printer, hath yeilded unto the saide disposition and purpose, these bookes following, viz.:

The first and second volume of Homilies.—The whole Statutes at large, with the preamble, as they are now extant.—The paraphrasis of Erasmus upon the epistles and gospells, appoynted to be read in churches.—Articles of religion agreed upon 1562, for the ministers.—The queene's injunctions, and articles, to be enquired of through the whole realme.—The profitt and benefite of the two moste vendible volumes of the New Testament, in English, commonlie called, Mr. Cheekes translation; that is, in the volume called, octavo, with annotations as they be now; and in the volume called, decimo sexto, of the same translation without notes in the brevier English letter onely.

Provided, that Mr. Barker himself print the sayde Testaments at the lowest value, by the direction of the master and wardeins of the Company of Stationers, for the tyme being. Provided allwayes, that Mr. Barker do reteyn some small number of these for diverse services, in her majesties cowrtes, or ellsewhere: and lastlye, that nothing, that he yeeldeth unto by meanes aforesaid, be prejudiciall to her majesties high prerogatiue, or to any that shall succeed in the office of her majesties printer.

Mr. Tottell, printer of the lawe bookes, hath yeilded unto the disposition and purpose aforesaide, these bookes following, viz.

Tullie's offices in English and Latin.—Morall philosophie.—Romea and Julietta.—Quintus Curtius, in English.—Mr. Dr. Wilson upon usurie.—Two English lovers.—Songes and sonnetts of the earle of Surrey.

Mr. Watkins now wardein, hath yeilded to the disposition and purpose aforesaide, this that followeth, viz.

The broad almanack; that is to say, the same to be printed on one syde of a sheet, to be sett on walls, as usuallie it hath bene.

Mr. John Daye, printer, hath yeilded to the disposition and purpose aforesaide, these bookes following, viz.

Calvin upon Daniell.—Pilgrimage of princes.—The jewell of joye.—Principles of religion, by Becon.—Dering's sermons in the tower.—Practise of prelatts.—Cosmographical glasse.—All the prayer books, which Henry Denham had from Mr. Day.—Peter Martyr on the Judges.—Peter Martyr on the Romanes.—Poor man's librarie.—Tindall's, Frythe's, and Barne's workes.—Becon's whole workes.—Bullinger upon the Apocalips.—Letters of the martyres.—Calvin's cathechisme, in sixteens.—Image of God.—Image of nature and grace.—Reliques of Rome.—Hawes's examinations.—Calvin's sermons upon Ezechias.—Pomander of Prayers, in octavo.—Governance of vertue, in octavo.—Governance of vertue, in sixteens.—Ascham's schole-

master.—Ascham's affaires of Germanie.—Saxon lawes.—Canons in English.—Vita et mors Juelli.—Articuli religionis.—Epistola Gildae.—Sylogisticon.—Drant in eclesiasten.—Forrest of histories.—A dialogue of Mercurie, and the English souldier.—Astronomers game.

Mr. Newberye, wardein, and Henrie Denham, assignes to execute the privilege, which belonged to Henr. Bynneman, deceased, have yeilded to the disposicion and purpose aforesayde, these bookes following, viz.

The breife chronicle in the volume, or sise, called, decimo sexto. Provided allwayes, that all addicions, which hereafter shall be putt to the same, and any other chronicle, that shall be sett forthe in the same, or lyke volume or size, shall be printed, and set forthe in the lyke breefe order, and forme, that the saide boke in decimo sexto, allreadie extant, is of. And all controversies, that may arise towching the saide booke, or addition, or alteration of, or to the same, or towching any other chronicle, that shall come forthe in this volume, or size, are submitted, and allwayes shall be submitted, and referred to the ordering and determinacion of the master, wardeins, and assistants for the tyme being, or the more part of them.

Item, all these bookes and copies following, or so manye of them, as shal be found to have belonged to the saide Henrye Bynnemen, viz.

Quarto.—Musculus common places.—Cornelius Agrippa of the vanitie of sciences.—Digge his Straticos.—Arte of shooting in great ordinance.

Octavo.—The Spaniards lyfe.—Booke of Gardening.—Colloquia Erasmi.—Exercitatio linguae Latinae.—Confabulationes Hessii.—Justini historia.—Virgilii opera —Sententiae pueriles.—Psalmi Roffensis.

Mr. Newberye, now wardein, in his owne right, and of his owne copies, doth yeild to the disposition and purpose aforesaid, as follows, viz.

Bullinger's decades, now readie to print. Allwayes provided, that the printers of it shall give certeyn leaves, that he lacketh.—Mr. Cooper's postill, when Mr. Newbery hath solde those of the former impression, which he hath in his hands, being under an hundred bookes. And then he will procure the quires to enlarge it.—Panoplie of epistles, when he hath solde those he hath of the former impression.—Chronicle of ten emperours of Grecia, when he hath solde those he hath.—Galeteo of good manners, Life of Serving men, Googe's songs and sonnetts, now ready to print.—Perambulation of Kent, allmoste readie to print.

Item, The said Henrye Denham hath yeilded these bookes following:

Pasquin in a traunce.—The hoppe gardein.—Ovid's metamorphosis.—The courtier.—Cesar's commentaries in English.—Ovid's epistles.—Image of idlenesse.—Flower of friendshipp.—Schole of vertue.—Gardiner's laborynth, Demosthene's orations.—Two or three of Seneca's tragedies.

A true Copy of the original Record remaining in the Rolls Chapel, of Letters Patents granted to the Company of STATIONERS, on the 8th day of March, 1615, being the 13th year of King James I. for the Sole Printing of Primers, Psalters, Psalms both in meter and prose, with or without musical notes; Almanacks, &c. in the English Tongue: and the A, B, C, with the Little Catechism, and the Catechism in English and Latin, &c. by Alexander Nowell; for the Help and Relief of the Master, Wardens, and Commonalty, and their successors for ever. Examined by Henry Rooke, Clerk of the Rolls.*

JAMES, by the Grace of God, &c.

To all Prynters, Booksellers, and all others to whome these Presentes shall come,

GREETING.

I. WHEREAS our dear sister Elizabeth late queen of England by her letters patents under the great seal of England, bearing date at Westminster the 26th daie of February, in the 33rd of her late reigne, did of her especial grace, certaine knowledge, and meere motion, graunt and give licence and privilege unto her well beloved subject Verney Alley, gentleman, and to his assignees in reversion, for the terme of thirty years, to commence and begin immediatelie from and after the death and decease of John Daie and Richard Daie his sonne, by himself or by his assignees to imprint or cause to be imprinted the Psalms of David in English meetre, and notes to singe them; The A, B, C, with the Little Catechism and the Catechism in Englishe and Latine, compiled by Alexander Nowell, with all other bookes in Englishe or Latine, which the said Alexander Nowell before that had made or hereafter should make, write or translate, and had or should appoint to be printed by the said Verney Alley or his assignees; and also all such other bookes whatsoever as the said Verney Alley should imprint, being compiled, translated and set forth by anie learned man at the procurement, costs and charges of the said Verney Alley, so that no such booke or bookes should be repugnant to the Holie Scripture, or the laws or orders of this realme, as in, and by the same letters patents maie appear; which said letters patents the administrators and assignes of the said Verney have assigned and sett over unto certaine persons in trust to the use of the master and keepers or wardens and commynaltie of the arte or mistery of Stacioners of the cittie of London and their successors.

II. And whereas also by our letters patents under our great seal of England, bearing date at Harfields the 29th daie of October, in the 1st year of our reigne of England, France and Ireland, and of Scotland the 37th, it is mencioned, that wee, for the helpe and releife of our lovynge subjects beinge of the corporacion of the master and keepers or wardens and commynaltie of the arte or mysterie of Stacioners of the cittie of London, and theire successors, of

* There was a previous grant to the same purpose, Oct. 29, 1605, 1 James I. but which was surrendered upon this second grant being made (see Art. III).

oure special grace, certaine knowledge and meere mocion have given and graunted full power and authoritie, priviledge and lycence unto the saide master and keepers or wardens and comynaltie of the mysterie or arte of Stacioners of the cittie of London and to their successors for ever to imprint or cause to be imprinted all manner of booke and bookes of Primers, Psalters and Psalms in meeter or prose with musical notes or without notes, both in great volumes and in small in the Englishe tongue, which then were or at any time after that should bee sett forthe and permitted by us, our heirs or successors or by any other person or persons thereto by us authorised, or to be authorised to be had, used, read or taught of, by or unto our lovinge subjects throughout our realme of England by whatsoever name or names the same booke or bookes or anie of them were or shoulde be called (the Bookes of Common Prayer usuallie reade in the churches of Englande, togeather with all bookes conteyned in the letters patents of the office of our printer graunted to Robert Barker and Christopher his sonne out of the said recited graunt alwaies excepted and foreprised) with prohibition to all other the subjects of us, our heirs and successors to print, utter or sell, or cause to bee printed, uttered or sould anie other booke or bookes of Prymmers, Psalters and Psalmes in the Englishe tongue (except as in the said recited letters patents is excepted) than such as shoulde bee by the master and keepers or wardens and commynaltie of the arte of Stacioners of the cittie of London or theire successors printed or cause to be printed accordinge to the true meaneing of the same graunte.

III. And where in and by our said recited letters patents it further mencioned, That wee of our more abundant grace, certaine knowledge and meere mocion for the better reliefe of the said corporacion of the master and keepers or wardeins and comynaltie of the mistery or arte of Stacyoners of the cittie of London and their successors, did give and graunte unto the said master and keepers or wardens and comynaltie of the mistery or arte of Stacyoners of the cittie of London and theire successors, full power, priviledge and authority, That they the said master and keepers or wardens and comynaltie and theire successors should and might at all times, and from time to time for ever printe and cause to be printed all manner of Almanacks and Prognosticacions whatsoever in the Englishe tongue, and all manner of bookes and pamphletts tendinge to the same purpose, and which were not to bee taken or construed other then Almanacks or Prognosticacions beinge allowed by the archbishoppe of Canterbury and bishoppe of London, or one of them for the time beinge, or by suche other person or persons as they or either of them for the tyme being shoulde in that behalfe assigne or appointe, by what names or titles soever the same should bee entitled, named or called, as should be printed within this realme of Englande, with straight commandement and prohibicion to all and singular other printers, booksellers and all other officers ministers and subjects whatsoever of us, our heires and successors, that they or anie of them at anie time or times after that should not printe or cause to bee printed anie of the said Almanacks, Prognosticacions or anie other Almanacks or Prognostica-

cions, bookes or pamphletts in the Englishe tongue, tendinge to the same or like purpose, and that mighte bee in anie wise construed and taken as Almanacks and Prognosticacions by what titles or addicions soever the same were or shoulde be intitled or named; nor buy, utter or sell, or cause to bee bought, uttered or soulde anie other Almanacks, Prognosticacions or other bookes in the Englishe tongue tendinge to the same purpose, then suche onelie as shoulde bee printed by the saide master and keepers or wardens and comynaltie of the misterie or arte of stacioners of the cittie of London and theire successors, as in and by the saide recited letters patents more plainelie appeareth, which saide recited letters patents by us graunted the saide master and keepers or wardens of the art or misterie of stacioners of the cittie of London have surrendered to us in our court of Chauncerie, and which wee have accepted.

IV. Now know yee that wee for the helpe and reliefe of the saide corporacion of master and keepers or wardens and comynaltie of the arte or misterie of stacioners of the cittie of London and theire successors, of our special grace, certaine knowledge and meere mocion have given and graunted, and by these presents for us, our heirs and successors doe give and graunte full power, authoritie, priviledge and licence unto the saide master, and keepers or wardens and comynaltie of the misterie or arte of stacioners of the cittie of London and to theire successors for ever, to imprinte or cause to bee imprinted all manner of booke or bookes of Prymmers, Psalters and Psalms in meeter or prose with musicall noates or without noates both in great volumes and in small, in the Englishe tongue, which now bee or at anie time hereafter shall bee sett forthe and permitted by us, our heirs or successors, or by anie other person or persons thereto by us, our heirs or successors, authorized or to bee authorized, to bee had, reade, used or taught of, by, or unto our lovinge subjects throughout our realme of Englande by whatsoever name or names the same booke or bookes, or anie of them are or shall bee called (The Booke of Common Prayer usuallie reade or to be reade in the churches of Englande, togeather with all bookes conteyned in the letters patents of the office of our printer graunted to Robert Barker and Christopher his sonne, other then the saide booke and bookes of Prymers, Psalters, Psalms in meeter or prose, Almanacks, Prognosticacions and bookes and pamphletts tendinge to the same purpose, which are not to bee taken or construed other then Almanacks or Prognosticacions, alwaies excepted and foreprised) anie priviledge or anie other order heretofore graunted or taken to the contrarie notwithstandinge: straightlie inhibiting and prohibiting all other person or persons whatsoever to printe, utter or sell, or cause to bee printed, uttered or sould, or to be brought into this realme from anie the partes beyonde the seas anie other booke or bookes of Prymers, Psalters and Psalmes in the Englishe tongue (except before excepted) then suche as shall be by the master and keepers or wardens and comynaltie of the misterie or arte of stacioners of the cittie of London, or theire successors, printed or caused to bee printed according to the true meaninge of this our present graunt and priviledge, upon paine of forfeiture of

all suche bookes, as they shall imprinte, utter or sell contrarie to the meaning hereof: The same booke and bookes so to be forfeited to be seised uppon and taken by the saide master and keepers or wardens and comynaltie of the mistery or arte of stacioners of the cittie of London and theire successors to theire owne proper use, benefitt and behoofe, and uppon such paines and penalties as may be inflicted uppon suche as contemne and infringe our commaundement royall.

V. Wherefore wee will and commaunde all and every the officers and subjects of us, oure heires and successors, as they tender oure favoure and will avoid our displeasure, that they and every of them (if neede do require) doe aid and assyste the said master and keepers or wardens and comynaltie of the arte or misterie of stacioners of the cittie of London, and theire successors, in the due execution of this our graunte and lycence with effecte, accordinge to the true intent and meaning of the same.

VI. And further know yee that wee of our more abundant grace, certaine knowledge and meere mocion, for the better relief of the saide corporacion of master and keepers or wardens and comynaltie of the misterie or arte of stacioners of the cittie of London and their successors, of our special grace, certaine knowledge and meere motion have given and graunted, and by these presents for us, our heires and successors doe give and graunte unto the saide master and keepers or wardens and comynaltie of the misterie or arte of stacioners of the cittie of London, and theire successors, full power, priviledge and authoritie that they, the saide master and keepers or wardens and comynaltie and theire successors shall and maie at all times and from time to time for ever printe and cause to bee printed all manner of Almanacks and Prognosticacions in the Englishe tongue, and all manner of bookes and pamphletts tendinge to the same purpose, and which are not to bee taken and construed other then Almanacks or Prognosticacions, being allowed by the archbishoppe of Canterburie and bishoppe of London, or one of them for the time beinge, or by suche other person or persons, as they or either of them, for the time beinge, shall in that behalfe assigne or appointe by what names or titles soever the same shall be intitled, named or called, as shall bee printed within this our realme of Englande.

VII. Wherefore by these presents for us, our heirs and successors wee doe straitlie charge, prohibite and commaunde all and singuler other printers, booksellers and all others the officers, ministers and subjects whatsoever of us, our heires and successors, that they or anie of them at anie time or times hereafter shall not printe or cause to bee printed or brought from the partes beyonde the seas anie of the saide Almanackes, Prognosticacions or anie other Almanacks or Prognosticacions, bookes or pamphletts in the Englishe tongue, tendinge to the same or like purpose, and that maie be in anie wise construed and taken as Almanacks and Prognosticacions, by what titles or addicions soever the same bee or shall bee intitled or named, nor buy, utter or sell, or cause to bee boughte, uttered or soulde anie other Almanackes, Prognosticacions or other bookes in the English tongue tendinge to the same or like

purpose then, such onelie as shall bee printed by the said master and keepers or wardens and comynaltie of the misterie or arte of stacioners of the cittie of London, and theire successors, uppon paine of forfeiture of all suche Almanackes, bookes, pamphletts and Prognosticacions as shall bee printed, bought, uttered or sould contrarie to the lymitacion and meaninge of these our letters patentees, and uppon paine of forfeiture of twelve pence for every Almanacke and Prognosticacion soe to bee printed, boughte, uttered or soulde, or imported, or brought into this realme from beyonde the seas; and alsoe uppon such paynes and penalties as maie bee inflicted upon such as contemne and infringe our commaundmente royall; all which saide forfeitures to bee to the use of us, our heires and successors.

VIII. And moreover by these our letters patents for us, our heires and successors wee doe will and commaunde all and singular our officers, ministers, and subjects whatsoever, as they tender our favour, and will avoide our indignacion and displeasure for the contrarie, that they and everie of them (if neede shall require) doe ayde and assiste the saide master and keepers or wardens and comynaltie and theire successors, as well for searchinge of all suche person or persones offending therein, as in the due exercise and execucion of this our present licence and priviledge with effect, and in all matters incident to the same, accordinge to the true meaninge of these presents.

IX. And further know yee that wee of our more ample grace, certaine knowledge and meere mocion for us, our heires and successors, doe by these presents graunte unto the saide master and keepers or wardens and comynaltie of the misterie or arte of stacioners of the cittie of London, and theire successors, That the saide master, wardens and assistantes of the saide corporacion for the time beinge, or the greater parte of them (whereof the master of the saide corporacion, for the time beinge, to be one) shall have full and free licence, power and authoritie to constitute, ordaine and make from time to time such reasonable lawes, ordinances and constitutions, as to them or the greater parte of them (whereof the master of the said corporacion, for the time beinge, to be one) shall seeme good, profittable, honest and necessarie accordinge to theire discrecions, for the good governmente and direccion of the saide master and keepers or wardens and comynaltie and of theire successors in, aboute or concerninge the due execution of these our letters patents.

X. And that the saide master, wardens and assistantes for the time beinge, and theire successors, or the greatest parte of them (whereof the master of the saide corporacion, for the time beinge, to be one) soe often as they shall constitute, ordaine and make anie such laws, constitucions and ordinances, as is aforesaide, shall and maie impose, assesse, ordaine and provide such paines, punishments and penalties, by imprisonment of body or by fines and amerciamentes, or by either of them, uppon all suche as shall offende against suche lawes, ordinances and constitucions, or anie of them, as to the saide master, wardens and assistantes and theire successors for the time beinge, or the greater parte of them (whereof the master of the saide corporacion for the time beinge to be one) shall seem necessary and convenient for the observa-

cion of the saide lawes, ordinances and constitucions, and the same fines and amerciaments from time to time and at all times hereafter shall and maie leavie, take and have to the use and behoofe of the saide master and keepers or wardens and comynaltie and of theire successors without impedimente of us, our heires, or successors, and without anie accompte therefore to us, our heires or successors to bee rendered or made.

XI. All and singular which lawes, ordinancies and constitucions soe as aforesaide, to bee made, wee will to bee observed under the paines therein conteyned. So alwaies that the saide lawes, ordinancies and constitucions be alreadie, or shall bee examyned and approved by the chauncellor of England, treasurer of Englande and cheefe justices of either benches of us, our heires or successors for the time beinge or anie three of them, and bee not contrarie or repugnant to the lawes, statutes, rights or customes of our realme of Englande, nor contrarie to the decree touching printers and booksellers made in the courte of Starr Chamber the three and twentieth daie of June in the eighte and twentieth yeare of the raigne of oure saide deere sister Elizabeth late queene of Englande.

XII. And wee alsoe do by these presentes confirme, approve and allowe all and every suche lawes, ordinancies and constitucions as by the master and keepers or wardens and comynaltie of the said misterie or arte of stacioners or anie of theire predecessors have been constituted, ordeyned and made for the good governmente and direccion of the saide master and keepers or wardens and comynaltie and of theire successors in, about or concerninge the due execucion of oure former letters patents graunted of the premises or anie of them: and which lawes, ordinances and constitucions have been examined and approved by the lord chauncellor of Englande, and by the chiefe justices of either benche for the time beinge under theire handes and seales.

XIII. And for the avoideinge of all confusion which maie happen in and aboute the premises, our will and pleasure is, and by these presentes for us, oure heires and successors wee do will and graunte, That the government, order and direccion of all affaires, matters and thinges concerninge the execution of this oure graunte and priviledge shall from time to time and at all times for ever remaine wholie and firmelie in the master, wardens and assistantes of the misterie or arte of stacioners of the cittie of London, and of theire successors, and of the greater parte of them (whereof the master of the said corporacion for the time beinge to bee one.)

XIV. And we further will and graunte for us, oure heires and successors, that this oure presente graunte shall be good and availeable against us, our heirs and successors, notwithstandinge anie misrecitall or not-recitall of anie former graunte or grauntes of the premisses or anie of them to anie person or persons whatsoever; and notwithstandeinge anie misnameinge, not true nameinge or not nameinge of anie of the premisses or of anie of them; although expresse mencion of the certaintie of the premisses or of anie of them, or of anie other giftes or grauntes by us, or anie our progenitors or predecessors to the saide master and keepers or wardens and comynaltie

heretofore made in these presentes, is not expressed; or anie other or former graunte by us or anie our progenitors heretofore had, made or done, or mencioned to bee had, made or done to anie other person or persons whatsoever or anie statute, acte, ordinance, provisions, proclamacion or restrainte to the contrarie thereof had, made, ordeyned or provided or anie other matter, cause or thinge whatsoever to the contrarie notwithstandinge. In Witness, &c. Witness our self at Westminster the eighte daie of Marche.

Per Breve de Privato Sigillo, &c.

I shall conclude this recitation of Charters, Decrees, Grants, and Privileges, giving monopolies of the labours of the Press to various bodies and individuals, with a curious note upon the subject, by Mr. Rowe Mores, copying all his quaintness of style and printing:—

Pleasant enough it is to contemplate the gradations by which the dispersion of knowledge amongst the people hath been effected,—*en et ecce!*

By restraints on the *founders*—by restraints on the *printers*—by exclusive patents for making *paper*—by exclusive patents for printing *Bibles, testaments,* and *comm. pr. books. necnon omnes libros quoscunq; quos in templis hujus regni uti mandavimus aut postea mandab.*—a lumping patent!—for *the Bible with annotations*—for *the N. Test.*—for *psalters*—for *primers*—for *catechisms*—for *prayer-books,* and, to bring devotion to it's *focus,* for "*living-voice* of *metre-psalm.*"

For *the Pandect*—for *the statutes*—for *statute-books, acts, proclam. &c.*—for *all manner of books touching the comm. law.*

For *Lat. Greek* and *Hebr.*—for *dictionaries*—for *grammars*—for *accidences*—for the *Criss-cross-row*—for *school-books* generally.

For *Maps* and *charts*—for *maps, charts, and plots of England and Wales*—for *all manners of books or tables touching cosmography, geography or topography.*

For *Music*—for *ruled paper* for *music*—for *songs.*

For *almanacs*—for *almanacs* and *brief chronicles*—for *single books.*

And lastly, when entireties were all exhausted, by exclusive patents for *things printed on one side of a sheet or of any part of a sheet of paper*—By the charter to the *Comp.* of *Stationers*—by taxes upon the *Universities* and to close the whole by a sweetener to authors of *a lease for years of their own works.*

Not but that indulgences of some sort were requisite in the infancy of the art "when there were but few books and few printers within this realm which could well exercise and occupy the science and art of printing," but these were granted upon good consideration, the encouragement of a newly-invented "feat," which opened the hidden mine of knowledge to a besotted world. yet were they few, and to endure but a short time. *Grafton's* patent was for three years only, for the printing of *Coverdale's* bible. afterwards they

became numerous as briefs for fire and water, high winds, hail storms, and thunder showers; tenants at rack-rent and burthened with numerous poor. and for any other sundries which packed *secund. artem* may be strained to the dam. of £1000 and three-half-pence, and bring grist to the *Ch.* and *Staff.*

When the people began to emerge out of darkness into light, and to show a desire for instruction, they were soon taught to pay for their curiosity by these shameful patents, by which the most necessary books were monopolized, and first of all those which first of all should have been priviledged.

But these patents and monopolies produced mussitations and grumblings, and a petition from the inferior printers to the privy council against them; setting forth that they were contrary to law, and that no such ought to be granted.—and they affirmed that they might and would (and so indeed they did too) print any lawful book notwithstanding any commandment of the queen.—The House of Commons took the matter into consideration, and the patentees, the richer printers, making a virtue of necessity, deemed it expedient to toss a cade to the whale, and to yield to the *Comp.* of *Stat.* in 1585 certain books towards the relief and maintenance of the poorer.—here's a list of some:

By *Barker* the *Queen's* printer,—The *N. Test.*—the *paraphr.* of *Erasm.*—the 2 *vols.* of *homilies*—the *articles* of *religion.*

The *Queen's injunctions.*—all "*pro templis,*" and to be purchased by every parish in the kingdom.—but mark, it was the profit only of the *N. T.* which *Barker* relinquished, with a proviso that he printed them himselfe; and with another proviso that he retained some for secret services. yet this was in the time of *Q. Eliz.* and these books the beginning of the reformation scarce then completed.

Tottel, the *law*-printer, had more in him of the wisdom of the serpent.—he kept his *law*-books to himself, and yielded *Dr. Wilson upon usurie,* and *the sonnets of th' earle of Surrey.*

The Warden,—an almanac to be stuck on walls.

Another,—Calvin upon Daniel, The practice of prelates, and *The image of God.*

Another,—Agrippa of the vanitie of sciences, and *Sententiæ pueriles.*

Another,—The art of rhetoric, The courtier, The flower of friendship, and *The image of idlenesse.*

But most of them with restrictions and reservations yielded unwillingly the remainder in fee of a squeezed orange. for *HOMO HOMINI,*—without a metaphor!

Other examples numberless might be given, but we content ourselves with two of recent date because we are all acquainted with the plunder.

Baskett, the patentee for bible printing in *Engl.* having besides obtained a lease of their printing-house from the Univ. of *Oxf.* and having also as he thought secured the printing-h. at *Edinburgh,* immediately levied upon the populace an advance of £60 *per cent.* on *bibles* and *comm. pr. books,* raising an enormous tax upon the people for reading the *scriptures,* and for learning to

"*pray by rote upon the book.*" and this is what is called *religion.* he imposed upon the simple folk at his own price books printed on bad paper and worse letter.—for 11*d.* the duty charged by *government* on a ream of paper *he* charged to the people 11*s.* so they were taxed *this way* and *that way,* yet the assigns of *Moses* had no part of the gains.

More moderate were *The Comp. of Stat.* who for the additional 1*d.* charged upon *almanacs* charged to the people no more than 3*d.*—such are the effects of charters and patents granted to leeches, and to such leaches only be they granted as to *Rock* and others who are panders for the devil.—but why are the people such fools?—*comm. prayer* and *scripture* they may have for their *tythes.*—for *almanacs* they may revive *The clogg,*—or there is a vagabond *Israelite* who sells "*Perpetual almanacs that lasts for ever.*"

But of *Baskett* more is to be said, that not content with *England,* he was for extending his monopoly into *Scotland* where was a patentee under like powers for *Scotl.* as *Bask.* for *Engl.* but *Bask.* calling himself *King's Printer for Gr. Britain* insisted upon vending his books in *Scotl.* under *The treaty of Union,* but that *Watson* the patentee for *Scotl.* an ingenious man, should not under the same *Treaty* vend his books in *Engl.*—this produced a contest, and the case was published at *Edinb.* 1720. 4to.—*Rowe Mores,* p. 77, &c. *note.*

After the Grants of Incorporation were obtained, it was necessary to raise a capital for carrying on the business thus vested in the Company. The sum of £.14,400 was then fixed upon to be raised by three descriptions of stock, as follows:—

	£.	s.	d.
First Class.—For the Master, Wardens, and Court, 15 shares of £.320 each (called "Assistants' Shares")	4,800	0	0
Second Class.—For the Livery, 30 shares of £.160 each (each denominated "A Livery Share")	4,800	0	0
Third Class.—For the Yeomen, 60 shares of £.80 each (each denominated "A Yeoman's Share")	4,800	0	0
Total	£.14,400	0	0

After some time, these shares being found too heavy for the yeomanry, half of them (viz. thirty), were divided into half

yeoman's shares, and denominated £.40 shares; so that the third class then consisted of thirty £.80, and sixty £.40 shares. However, the gradual advances of the trading speculations of the Company, chiefly by the additional stamp duty imposed upon Almanacks, requiring a proportionate augmentation of capital, various shares have been added, till the capital has been increased to £.41,280 in 336 shares, which paying a dividend of 12 and ½ per cent, the total amount annually divided will be £.5,160; as will be seen by the following table:

Number of SHARES.	DENOMINATION.	CAPITAL.		Annual Dividend of each Share 12½ per Cent.	TOTAL AMOUNT OF ANNUAL DIVIDEND.
		£.	£.	£. s.	£.
20	Assistant Senior, at 400*l.*	8,000	- -	50 0	1,720
18	Do. Junior, at 320*l.*	5,760	- -	40 0	
			13,760		
40	Livery Senior, at 200*l.*	8,000	- -	25 0	1,720
36	Do. Junior, at 160*l.*	5,760	- -	20 0	
			13,760		
40	Yeomanry Senior, 100*l.*	4,000	- -	12 10	920
42	Do. Junior, 80*l.*	3,360	- -	10 0	
80	Half-Yeomanry Senior, 50*l.* ..	4,000	- -	6 5	800
60	Do. Junior, 40*l.* ..	2,400	- -	5 0	1,720
			13,760		
336			41,280		5,160

The privilege of holding the stock-shares is fairly acquired by rotation, unless forfeited by contumely in refusing to abide by the mode which will be hereafter explained, of choosing, or fining for, the renter warden; in about two years after he has thus served or fined, the young liveryman is called upon for £.40 towards stock, or a half yeomanry junior share; as also, six pounds and six pence for fees; immediately upon the payment of which he comes into his share of dividend, not subject to either increase or diminution, viz.: £.5 per annum. Time for payment of the £.40, by four instalments, is given. In a few years more he is called upon to hold an augmentation of £.10, making a half-yeomanry senior share, or £.50, paying a dividend of £.6 5*s*. per annum.

In about eighteen years after first admission he gets, by paying £.30 more, a yeomanry junior share, or £.80, producing an annual dividend of £.10. Thus, as vacancies occur by the death

of his seniors, he acquires the higher classes of stock; a very fair principle, and most impartially acted upon; but the court reserve to themselves the privilege of calling only those to join their select body, who, from connexion with the trade of the Company, or whose respectability of life and convenient means of attendance, they deem most fit associates; it is very proper that some such selection should be made, the only question would be, whether, since the rota of seniority is abandoned, the selection of their governors should not lie with the Livery themselves. It has been thought so in former times, and acted upon, the particulars of which I shall give a few pages hence.

The income from the capital thus advanced continues for life; and if the member be a married man, and die, leaving a widow, *to whom he by will* bequeath his stock, she will likewise be intitled to receive the benefits arising from the same as long as she live; and will also possess the right of giving the principal by will to any person or persons she may think proper, unless previously disposed of by her husband's will. Thus, Mrs. Beata Wilkins bequeathed her £.320 *share* to the company, which amount was laid out, &c. (see p. 279.) But in case a husband die intestate, or omit to bequeath the stock to his widow, in a direct manner, she will not be intitled to any advantage arising from the continued dividend for her life of 12½ per cent, but the principal of such stock, goes immediately to the next heir; nor, should a widow who has interest in this company marry again, will her husband be intitled to the profit of the share she previously had in the concern, but another person will be elected in her place, who, as soon as he is chosen, is required to pay the principal stock held by such widow, to her husband, or some person duly authorized by him to receive the same; and a similar course is pursued in all cases where stock is required to be transferred from one person to another.

A part of the income of the Stationers' Company arises from certain lands in the province of Ulster in Ireland. In the beginning of the reign of James I, a considerable part of this province was vested in the crown by an act of attainder, against some Roman Catholics of distinction, who had rebelled; and soon

afterwards a project was suggested by the earl of Salisbury, lord high treasurer to the king, for establishing a Protestant colony upon the forfeited estates. This scheme was approved of; and in 1608, the king, with a view to the formation of such an establishment, applied to the city of London, and offered to grant the citizens a great part of the forfeited estates as an inducement for them to undertake to carry the proposed plan of settlement into effect. The citizens in consequence undertook the plantation of the district; and king James, on the 29th of March, 1613, granted them a charter to authorize them, as a company, to be selected from the corporation, by the style and title of "The Irish Society," to occupy and possess the lands in question, which were divided into twelve parts. The total amount which had been disbursed by the city in completing this undertaking was £.40,000; and this sum was also divided into twelve shares, to correspond with the number of parts into which the lands had been divided; each share amounting to £.3,333 6*s.* 8*d.* The several corporation companies that contributed to the colonizing of this Irish province, did not each subscribe equal portions of capital towards defraying the expenses; but, in order to make up the amount of each twelfth share of the whole, namely: £.3,333 6*s.* 8*d.*, they united under the twelve principal companies of the city, namely: Goldsmiths', Grocers', Fishmongers', Ironmongers', Mercers', Merchant Tailors', Haberdashers', Clothworkers', Skinners', Vintners', Drapers', and Salters', in such a way as to conveniently regulate their respective shares in the expenses incurred; and according to the extent that each separate company had embarked in the proceeding. This arrangement will be better understood by the following example, by which it will be seen that the Stationers' Company came into the list with the Skinners', as principal . . . £.1,963 0 0

Stationers'	520	0	0
White Bakers'	480	0	0
Girdlers'	370	0	0
One twelfth share of the whole disbursement	£.3,333	0	0

The estates were then conveyed by the Irish Society to the companies, according to lots drawn; and the management of the

espective revenues of each division still remains in their hands. The cities of Londonderry and Coleraine, with the lands, woods, ferries, and fisheries attached to these cities, not being susceptible of division, remained an integral property of the Irish Society of the city of London,* under whose management all the unallotted emoluments were left, and who became accountable to the companies before mentioned, for the nett proceeds of the rents and income of all kinds.

Thus did the several joint companies become absolute *lords* of the confiscated lands, unencumbered with any farther charges or acknowledgments than such as the original compact between the king and the corporation of London in 1609 stipulated, and many of them have reaped pretty good profits from this speculation of their forefathers. It would not, however, be compatible with a treatise, definitive in its purpose as this is, to digress into general remarks upon the difference of policy by which the twelve different bodies have been actuated: I shall, therefore, only give an instance, in speaking of the renewal of the Stationers' Company (which it will be recollected is a subordinate member of that co-partnership united under the Skinners'), of the extraordinary emoluments which are, at the present time, derived by the shares in these estates. It has been already stated that the Skinners' Company, with the Stationers', White-bakers', and Girdlers' jointly funded, in different proportions, the sum of £.3,333 6*s.* 6*d.* The Skinners' estate, which is situate near the city of Londonderry, was, about the year 1803, let on lease to Mr. Ogilvie, or Ogilby, a linen-factor of Dublin, who paid down a fine or premium of £.25,000 for his lease, independent of the annual rent fixed by the contract. Of this fine alone, the proportion which accrued to the Stationers' Company for the original advance of its £.540, would be £.4,050; and each subscribing company would share according to its proportion of the £.3,333 6*s.* 8*d.* first advanced.†

* The Irish Society is elected annually at the Court of Common Council next following the second day of February. Those members of the corporation only are eligible who are of the livery of the twelve companies.

† Though the temptation to enrich, in this sort of way, their coffers, has prevailed, for the most part, over a more liberal line of policy, yet some few companies as the terms of leases expired, kept their allotments in their own

The government of the Company of Stationers is, by their charter (see p. 247), vested in the master, two keepers or wardens, and the commonalty,* who are ordained in the first charter to

hands for the benevolent purpose of improving the condition of their tenantry; and as an instance of the more laudable system, and the happy effects that result from their philanthropic mode, it is but fair to briefly advert to the plan of economy adopted by the Company of Drapers.—It appears from the reports of various deputations sent over by this company in the years 1817, 1818, 1819, and 1820, with a view to inquire into the state of their portion of the settlement, in order to ameliorate its condition, that, in a few years, a miserable and degraded peasantry has been brought into a rapid course of civilization. The schedule of their rentals now lying before me, appears to have been divided into various classes of property; the first comprising those *Takes* under 5*l.* a year, then those from 5*l.* to 10*l.*, and on from 10*l.* to 15*l.*, and from 15*l.* to 20*l.*, and so on upwards. Certain conditions are then offered to the several classes of tenants, which enable them to hold, *immediately under the proprietors*, such tenements and portions of land as may suit their respective conditions in life; or to which the industrious may aspire—schools have been established for the education of all who may be willing to receive it—edifices for public worship have been erected—medical asylums for the poor founded—corn-mills built, and let at fair rents, under stipulations to prevent undue exactions from the indigent—markets and fairs (not meetings of a mere idle and dissolute kind, but for the convenience of traffic) have been promoted—inns have been erected where accommodations of that sort had never before existed. The improving of the roads has been so regulated as to consult the most advantageous appropriation and general employ of persons wanting that sort of labour. And the general administration of the local offices has been prudently reformed in all their districts; so that this company has now the high gratification of beholding their little colony, consisting of about *twelve thousand* inhabitants, approaching, by rapid strides, to a degree of civilization which will render it "an Oasis in Mid-Afric."

* Mr. Nichols says, "and a court of assistants;" but no such words are to be found in any one of the charters or renewals. The *assistants* were therefore created by one of those "ordinances, provisions, and laws," which by clause V, of the first charter, they were empowered to make. These bye-laws are, however, kept from the commonalty: they have nothing to do but to obey them. The bye-law under which the present mode was established, is as follows: "It is likewise ordained that the full and absolute power of nomination, and election of master, wardens, and assistants, members of the livery, and of all other officers of the said society, shall always be and remain as usually heretofore hath been, only in the master, wardens, and assistants of the said society; or the major part of them in a court or courts of assistants assembled; in which nomination and choices they shall observe the ancient ways, time, and method of nomination and election which have heretofore

have perpetual succession, &c. The powers granted to the company by these charters will be seen to be of such a nature as would not be very fit to be acted upon in the present times. They had the rights of the inquisition itself over all literary compositions—might search houses for any books which *they* deemed obnoxious to the state or *their own interest*—might enter, as often as they pleased, any place, shop, house, chamber, or building, belonging to any stamper, printer, binder, or seller of any manner of books—might seize, take away, have, burn, or convert to their own use, whatever *they should think* was printed contrary to the form of any statute, act, or proclamation, made or *to be made!* And that these odious privileges were at one time acted upon may be concluded from a charge made in the Company's accounts for the year 1591. "Item, paid for charges of search dinners, 10 times, at 3*s.* 4*d.* = 33*s.* 4*d.*"

In 1762 a schism also occurred among the members, headed by a type-founder and printer, Jacob Ilive. He called a meeting of the Company for Monday the 31st of May, 1762, being Whit-monday, at the Dog Tavern on Garlick-hill, to "rescue their liberties" and choose master and wardens. Ilive was chosen chairman for the day; and standing on the upper table in the hall, he thanked the freemen for the honour they had done him—laid before them several clauses of their two charters—and proposed Mr. Christopher Norris, and some one else, to them for master, the choice falling upon Mr. Norris. He then proposed, in like manner, John Lenthall, esq., and John Wilcox, gent., with two others for wardens, when the two first nominated were elected. A committee was then appointed by the votes of the common hall, to meet the first Tuesday in each month at the Horn Tavern, in Doctors' Commons, to inquire into the state of the Company; which committee consisted of twenty-one persons, five of whom (provided the master and wardens were of the number) were empowered to act, as fully as if the whole of the committee were

been observed and used in the said society." Whether this bye-law is exactly consonant to the charter itself, might, perhaps, if any good were likely to result from it, admit of a question. Neither is there mention made in the charter of "renter-wardens:" nor of the liberty of benefiting the stock every year by an anomalous mode of choosing them. This bye-law was made sometime about the year 1682.

present. July the sixth, being the first Tuesday in the month, the newly-elected master, about twelve o'clock, came into the hall, and being seated at the upper end of it, the clerk of the hall was sent for and desired to swear Mr. Norris into his office; but he declined, and Mr. Ilive officiated as the clerk in administering the oath. A boy then offered himself to be bound; but no warden being present he was desired to defer until next month, when several were bound; some freemen made; and others admitted on the livery; one of whom, at least, has frequently polled at Guildhall in contested elections.*

I do not find that any particular notice was taken of these proceedings; or of "this rebellious election of a master and wardens," as Mr. Nichols calls it in his Index.—Ilive was somewhat disordered in his mind. He was author of several treatises on religious and other subjects. He published in 1733, an oration to prove the plurality of worlds; that this earth is hell; that the souls of men are apostate angels; &c.—For one of his pamphlets he was confined two years in Clerkenwell Bridewell. Previous to calling the meeting just described, he published a pamphlet on "The Charter and Grants of the Company of Stationers; with observations and remarks thereon;" in which he recited various grievances, and stated the opinions of counsel upon several points. I have a copy of this pamphlet now lying before me, the twentieth page of which concludes with the line,

Excudebat, edebat, donabat, Jacob Ilive, Anno M.DCCLXII.

Those who have been called on the court succeed in rotation to the higher offices of warden and master; but vacancies arising in the court are filled up by the court itself, according to seniority of the livery, unless some particular reason interposes to the contrary.†

* Gough's British Topography, i, 597, 637, and Nich. Anec. i. 311.

† It may be also observed, *en passant*, that an alderman's gown is a sure passport to the Court-list. Any member of the Company who receives from his fellow-citizens that honourable distinction, is, as a matter of course, worthy of being *called*. He has to treat the Company with a dinner; and then takes his seat at the board for life. But the honour is rather barren, as this adventitious elevation in the Company does not entitle him to hold any more stock than he might be previously entitled to possess.

The trading concerns are managed by a regular committee of nine members; viz. the master, the two wardens, and six other stock-holders, who are annually chosen and are generally re-elected: but in case of a vacancy by death, or being called on the court, an election takes place, conducted in the following manner. The livery (stock-holders) are summoned to elect; they meet in the stock-room, are called into the court-room, and charged by the master with the duty they have to perform; they then return to the stock-room and choose six, whose names are carried to the court—out of the six chosen by the livery, the court selects one; the livery-men are then called in, and informed upon whom the choice of the court hath fallen. Annual election is practised, as far as the form goes,—but an attempt to supplant the sitting members would be futile. The duty of renter-warden is to attend on the first Tuesday in every month, to collect the quarterage; there are two of these officers, and they are chosen annually. As the mode of appointment of renter-warden is somewhat out of the common way, and rather a novel mode of allowing a man the choice of three things, namely, whether he will *fine*, or *serve*, or be *put in rotten row*, I shall attempt a brief detail of this piece of civic dexterity. Let it be first premised, that *the fine* to excuse from serving is TWENTY-FOUR POUNDS, and the expense incurred, if you are chosen to serve, is about the same sum. From eight to sixteen of the junior livery-men are called upon, on these occasions, that a choice may be made. Upon appearing before the court, they are severally asked, "Do you wish to *serve* or *fine*, or *be passed over?* Some, of course, wish to be excused serving, and prefer paying the fine, not being willing to bar all future privilege or profit; but by far the greater number are desirous to serve, because it is the means of an introduction to the society of those most eminent in the profession to which theirs is allied. Well, the whole number having been thus ceremoniously offered *their choice*, and having given their answers and retired, TWO upon whom the court have pitched, and the selection of whom, from canvas made before-hand, can usually be very surely anticipated, are called in to be informed of the honour done them, in being appointed to serve, and all the remaining fourteen, *nolens-volens*, are told "that they are *fined* the twenty-four pounds, to which is added £1. 5*s*.

for fees!* If they do not pay such fine, no chance for future election remains open,—they are placed in what is termed *rotten row;* that is, immediately below the renter-wardens for the time being, and before those next in turn to be called to serve, where they must remain all their lives, without the privilege of *holding stock,* without being allowed to share in the profits of the Company's trade or revenues, or the chance of ever arriving at court honours. No opportunity of redemption can ever occur; and many who consider that their prospects in trade can receive no benefit from a future connexion with the Company, and who can apply their twenty-five pounds to a better purpose, voluntarily enter this independent list, which may be known by its being placed after a blank line, under the names of those who last served renter-warden, and between those names and the names of such as are next in succession to be called to this *choice* of office.

The expenses on entering and going through the several gradations of the Company are as follows:—

	£.	s.	d.
Binding Apprentice—Stamps for Indentures, if no premium be given	2	0	0
Fees	0	10	6
Court-room Fee, for which a Bible is presented to the Apprentice	0	10	6
When out of time, Making Free	1	15	0
Admission to the Cloathing†	50	0	0
Fees	1	3	0
Each *Yeoman* of the Company has to pay a Quarterage to the Funds of	0	1	4
Each Livery-man	0	2	0
The Annual List is an expected, but optional, Fee to the Beadle of	0	2	6

* The receipt for the fine given both to those who *wish to serve* and those who *wish not to serve* is in form as follows:—

Stationers' Hall:

Received the of the Sum of twenty-four Pounds, for his Fine on being excused serving the Office of Renter-warden of this Company for the Year ensuing.

Signed, Warden.

£.24. Fees £.1 5*s.*

† This was formerly 20*l.* but the company increased so rapidly that it was thought prudent to increase the livery-fine, for the sake of keeping the society more select, to 50*l.*

Two general dinners in the year is all the livery get for these fees; namely, the Summer, or Venison Dinner, as founded by Mr. John Sweeting (of which see hereafter), and the Lord-Mayor's-Day Dinner, given nominally by the renter-wardens, who pay £.24 towards the expenses, as stated in p. 276, the remainder being defrayed out of the Company's funds.

The List of Charitable Donations and Benefactions lately published affords much curious information: I, therefore, subjoin an abstract of it.

Abstract of the Charitable Donations in the Disposal of the Court of Assistants of the Worshipful Company of Stationers.

Mr. William Lambe, in 1567, gave an annuity of 6*l.* 13*s.* 4*d.*, for perpetual relief of the poor in the parish of St. Faith.

Out of this annuity the Company pay 6*s.* 8*d.* for a sermon at St. Faith's, on the 6th of May; and also give weekly to twelve poor men or women, six of whom must be free of the Stationers' Company, one penny in money and one penny in bread; the remainder, 1*l.* 2*s.* 8*d.* to be applied towards one of the Company's dinners.

Mr. Lambe also gave to six of the poorest men and six of the poorest women of the parish of St. Faith a good frieze gown. The sermon is still preached, agreeably to the will of Mr. Lambe, on the 6th of May, when the twelve pensioners are regularly required to attend and receive their gowns.

Mr. William Norton, Mr. John Norton, his nephew, and Mr. George Bishop, in the years 1594, 1610, and 1612, left various legacies and gifts to the Company, which, as they are fully stated in pages 129, and 135-6 of this volume, I shall not repeat here.

Mr. Christopher Meredith, in 1655, gave 10*l.* a-year, to be paid in quarterly pensions to the poor of the Company.

Mr. John Sweeting, gave his *fourscore pound share* of the English stock; a rent of 10*l.* a-year from the tithes of Dodington, in Northumberland, and another rent of 10*l.* a-year, from the tithes of Chutton, in the same county; directing that out of the first year's receipt 10*l.* be laid out in something "to preserve his Memorial in the Company;" which was "bestowed on a silver cup, college-fashion, for the preservation of his memory."

He also desired that 6*l.* should be expended on two dinners (3*l.* for each dinner) for all the bachelors that are booksellers free of the Company of Stationers, shopkeepers of themselves in the city of London. After the first year the annual sum to be thus applied: to the master 10*s.* for a pair of gloves, and 20*s.* to a godly minister, for a sermon to be preached on the 10th of August, or some day near it. With the residue a dinner to be provided, for the master, wardens, assistants, clerk, and such of the livery as should attend

at the church to hear the sermon: and hence is to be dated the ANNUAL VENISON FEAST.

Mr. EVAN TYLER, in 1682, gave 7*l.* 4*s.* for a yearly collation.

In 1688, the sum towards a dinner from the legacy of Mr. Lambe 1*l.* 2*s.* 8*d.* was consolidated with the 7*l.* 4*s.*, to be expended at the Venison Feast.

Mr. THOMAS PARKHURST, in 1712, gave 37*l.* to purchase annually 25 bibles, with psalms, to be given to the poor. Hence the custom of giving a bible to every apprentice when he is bound.

THOMAS GUY, esq. M. P. an eminent bookseller, and the munificent founder of the hospital which bears his name, gave to the Company, in 1717, 1,000*l.* "to enable them to add 50*l.* a-year, by quarterly payments, to the poor members and widows, in augmentation of the quarterly charity."

Mr. THEOPHILUS CATER, in 1718, gave 1,000*l.* to the Company, on condition of their paying him an annuity of 50*l.* for his own life.—After his death,* 40*l.* to be thus disposed of: to the minister of St. Martin's, Ludgate, for a sermon, 1*l.* 10*s.*; to the reader, 5*s.*; to the clerk and sexton, 2*s.* 6*d.* each, 5*s.*; to fourteen poor freemen of the Company, 14*l.*; to ten poor men of St. Martin's, 10*l.*; to ten poor men of Christ-church, 1*l.* each. The remainder, (being 4*l.*) towards a dinner for the master, wardens, and assistants.

Mr. DANIEL MIDWINTER, in 1757, gave 2*l.* to be applied towards the expense of Cater's dinner, on the first of December. To this dinner 3*l.* a-year was added in 1772 by the will of Richard Brooke, esq.; and 30*s.* a-year in 1798 by that of William Gill, esq. alderman of London.

Mrs. BEATA WILKINS, in 1773, gave the picture of Doctor Hoadly, lord bishop of Winchester, now in the Stock-room; and the interest and produce of all the money arising from her forty-pounds share stock (computed at 320*l.*) to be distributed, annually, amongst six poor men and six poor widows, not pensioners to the Company, in the month of December, before Christmas.†

WILLIAM BOWYER, Esq. in 1777, gave to the Company, "for the benefit of Printing," 2,000*l.* three per cent reduced Bank annuities, the dividends to be divided equally amongst three printers, compositors, or pressmen, to be elected from time to time by the Court of the Company, who, at the time of election, shall be sixty-three years old, or upwards, for their respective lives, to be paid half-yearly.

Also, 3,000*l.* four per cent consolidated annuities; the dividends to be divided for ever, equally, amongst six other such old printers, compositors, or pressmen, for their respective lives, to be qualified, chosen, and paid, in manner as aforesaid.

Also, 1,000*l.* three per cent reduced Bank annuities, the interest for the use of one journeyman compositor, to be paid half-yearly. He must be "a man of good life and conversation, who shall usually frequent some place of public

* Mr. Cater received the annuity to Christmas 1719; and died soon after.

† The produce of the share was laid out in the purchase of 358*l.* 11*s.* 4*d.* five per cent navy annuities. The yearly dividend is 17*l.* 18*s.* 6*d.* To which the Court add 1*s.* 6*d.* to make the dividend to each annuitant 1*l.* 10*s.*

worship every Sunday, unless prevented by sickness, and shall not have worked on a newspaper or magazine for four years at least before such nomination, nor shall ever afterwards whilst he holds this annuity, which may be for life, if he continues a journeyman. He shall be able to read and construe Latin, and at least to read Greek fluently with accents; of which he shall bring a testimonial from the rector of St. Martin's, Ludgate, for the time being. I could wish that he shall have been brought up piously and virtuously, if it be possible, at Merchant Taylors', or some other public school, from seven years of age till he is full seventeen; and then to serve seven years faithfully, as a compositor, and work seven years more as a journeyman; as I would not have this annuity bestowed on any one under thirty-one years of age. If, after he is chosen, he should behave ill, let him be turned out, and another chosen in his stead. And whereas it may be many years before a compositor may be found that shall exactly answer the above description, and it may at some times happen that such a one cannot be found; I would have the dividends in the mean time applied to such person as the master, wardens, and assistants, shall think approaches nearest to what I have described.*

"And whereas the above trusts will occasion some trouble, I give to said Company, in case they think proper to accept the trust, 250*l.*†

*** To each of Mr. Bowyer's annuitants an engraved portrait of their generous benefactor is presented on the day of his election.

The journeymen compositors who have enjoyed this liberal bequest, are as follows:—

1. Mr. Jacob Wragg, a compositor, who died at Bury, in February, 1781.

2. Mr. Fletcher, formerly printer of a Newspaper at Cambridge, who died in 1790.

3. Mr. William Davenport, a young man of considerable ability, the son of a clergyman of Leicester, who had been apprenticed to Mr. Strahan, on the recommendation of Dr. Johnson, he enjoyed it only two years; died January 2, 1792.

4. Mr. Richard Bond, was a printer of some eminence at Gloucester, but his business failed, and he was, when chosen, a compositor in the service of Mr. Bowyer. He died July 2, 1805, aged 80.

5. Mr Matthew Brown, formerly a master printer, but failing in business, was elected to enjoy this annuity. He died in 1818.

6. Mr. Thomas Farnworth, the present annuitant.

Of the other nine annuitants there have been frequent vacancies from the circumstance of none being admitted under the age of 63. N. iii, 287, 8.

William Strahan, Esq. M.P. in 1784, gave 1,000*l.* one half of the annual interest to be divided in equal shares or proportions to five poor journeymen printers, natives of England or Wales, freemen of the Company; the other half in equal shares or proportions to five poor journeymen printers,

* 6,000*l.* stock was immediately transferred by the executors of Mr. Bowyer; and now stand in the name of the Company; the yearly dividend is 180*l.*

† This sum was applied to the general purposes of the Company.

natives of Scotland, without regard to their being free-men or being non-freemen of the Company.*

THOMAS WRIGHT, Esq. late Alderman of London, in 1794, gave 2,000*l.* four per cent Bank annuities, the dividends to be distributed as follows; upon the first day of January 50*l.* 8*s.* amongst twenty-four poor freemen of the said Company, not receiving any other pension from the Company, 2*l.* 2*s.* each. To the clerk of the Company 3*l.* 3*s.* for his trouble upon this occasion. And 26*l* 9*s.* residue of such dividends, for providing a dinner for the master, wardens, and assistants, of the Company, upon the day of distribution.

Mr. RICHARD JOHNSON, in 1795, gave all the remainder of his property, whatsoever, to the Company, upon the following conditions: that they allow his sister, Mary Johnson, 50*l.* per annum, and 10*l.* per annum to his uncle Lockington Johnson, or to his wife, Elizabeth Johnson, during their natural lives. After the deaths of his sister and uncle, and his wife, the whole property to be divided half-yearly, "among five very poor widows, who have seen better days, above the age of sixty, whose husbands were liverymen, and in a good way of business; were either stationers, printers, booksellers, or binders."†

JAMES DODSLEY, Esq. a member of the Court of Assistants, in 1797, gave 320*l.* to be applied to the general purposes of the Company.

CHARLES DILLY, Esq. in November, 1803 (being then a member of the Court of Assistants) transferred 700*l.* 3 per cent annuities to the Company, the dividends to be "paid equally to two widows of livery-men of the Company, who have lived in better circumstances, and met with unexpected misfortunes, but who, through their conduct and manners in life, are deserving of superior help. And if there should be candidates of sixty years of age, or upwards, I should wish them to have the preference."

Mrs. ELIZABETH BALDWIN, widow of Mr. Richard Baldwin* a livery-man, gave 250*l.* stock in the three per cents, the dividends to be laid out and expended in the purchase of five great coats, to be annually given to five poor livery-men or freemen of the said Company in the first week of the month of December for ever.

ANDREW STRAHAN, Esq. M. P. now a member of the Court of Assistants, (first benefaction) in January, 1815, transferred 1,225 four per cent annuities to the Company, the interest, viz. 49*l.* to be applied as follows, viz.

"Eight pounds per annum to each of the six pensioners amongst my father's annuitants who shall have been earliest elected into that list, in lieu of the 4*l.* which they at present enjoy. And whenever any of the pensions of 8*l.* each shall become vacant, the pensioner who shall stand first on the list of my father's annuitants of 4*l.* to succeed to such vacancy, without troubling the court to make a new election, except for the vacancy occasioned thereby

* The yearly dividend of this bequest is 39*l.* 14*s.* 10*d.*—to which 5*s.* 2*d.* (part of a subsequent donation by Andrew Strahan, esq.) has since been added, to make the dividend to each annuitant 4*l.*

† The sum of 1,000*l.* four per cent Bank annuities, was found in the testator's name and the executors, with this and his other property, purchased 800*l.* like annuities.

* Mr. Baldwin died in January 1776; his widow Aug. 19, 1809.

in the annuitants of 4*l.* And as 5*s.* 2*d.* is added by the court to make up the pensions of my late father 4*l.* to each annuitant, I would have the sum of 5*s.* 2*d.* (part of the surplus of 1*l.*) applied to that purpose. The remaining 14*s.* 10*d.* I would have given to the beadle of the Company, who has some trouble in receiving the petitions.

"The pensions above given it is my wish should be paid twice in the year; the one half at the same period as the pensions given by my late father, and the other half at Midsummer.

"I observe that my father's pensioners are to be elected annually, which, I believe, may not always have been strictly complied with; but, by being so bequeathed, it enables the court to displace any individual who may at any time after his being elected appear to the court not to be deserving; and it is my wish that the court should have the same power of displacing any of the pensioners of eight pounds who shall appear to them to be undeserving."

John Nichols, Esq. now a member of the Court of Assistants, transferred to the Company, in June, 1817, 500*l.* four per cent annuities, "as an addition of a small supplement to the works of my late friend and partner, Mr. William Bowyer," to pay the dividends to the persons mentioned in the following list; one of whom has worked for me more than fifty years, another much more than forty, and the others nearly thirty years.

15*l.* a-year to Thomas Bennett, in addition to the annuity he now enjoys.

5*l.* a-year to William Morlis, in addition to what he now enjoys, or may hereafter enjoy.

On the death of Bennett,* his 15*l.* to be divided into three annuities—for James Rousseau, John Meeson, and James Robinson, if then living—otherwise to any other compositor or pressman, of good character, not less than 45 years of age, and who shall have been at least 21 years free of the Stationers' Company.

On the death of Morlis, his five pounds to be added to the person who then stands first on the list; so that eventually there will only be one annuitant of ten pounds, and two of five pounds each.

The annuitants to be paid at the same times as those of Mr. Bowyer. J. N.

Andrew Strahan, Esq. M. P. (second benefaction) transferred, in March, 1818, the further sum of 1,000*l.* four per cent annuities, "to pay the dividends half-yearly in portions of ten pounds to four distressed old printers. No person to be eligible till he be 65 years of age: he may be freeman or non-freeman, compositor or pressman, or have been for many years employed regularly as corrector or reader in a printing-office within the Bills of Mortality, and not necessarily one of my late father's annuitants or of mine."

Mr. Strahan nominated the five first persons, viz. two compositors, one reader, one pressman, to enjoy this gift.

Luke Hansard, Esq. (first benefaction) on the 11th of July, 1818, transferred to the Company 1,000*l.* four per cent annuities, the interest to be

* Thomas Bennett died March 30, 1818.

given, in two annuities of 10*l.* a-year each, to such objects above 65 years of age, free of the Company, and letter-press printers (compositors or pressmen), as the court shall judge proper.*

The other 20 pounds to be given yearly to four freemen of this Company, printers, booksellers, stationers, warehousemen, or bookbinders, above 60 years of age, at 5*l.* a year each, as the court shall think proper objects of this donation.

Luke Hansard, Esq. (second benefaction), in September 1818, transferred to the Company 1,500*l.* three per cent consolidated annuities; in trust to give to every youth bound at their hall, a neatly-bound Church of England Prayer-book, as printed by his majesty's printer in London, bound up with the New Version of Psalms.

The number of Prayer-books thus to be disposed of, are taken at 200, which, at a presumed price of 2*s.* 7*d.* each, will cost yearly, 25*l.* 16*s.* 8*d.*

Then to give yearly to two of his warehousemen (named) 6*l.* 6*s.* each.

Also to "such warehouseman, or binder, or stationer, or other person in the class to whom the court has been accustomed to give such annuities, above 60 years of age," 6*l.* 6*s.*

The residue of 5*s.* 4*d.* and whatever residue may be left from the 200 Prayer-books not being wanted, or from the cost being less, to be applicable for such purposes as the court shall think proper.

Beale Blackwell, Esq., gave, July 1817, so much Bank stock as at the time of his death would produce the annual sum of one-hundred pounds, to be every year distributed equally amongst twenty deserving journeymen letter-press printers; the first distribution of which took place in October, 1821.

A more detailed account of these charitable donations and benefactions will be found in a pamphlet of 32 pages, printed by order of the court, in 1819, and given to each Liveryman.

Peter Short is said by Ames to have been a benefactor to the Stationers' Company; but is not stated in what manner. The same of Robert Dexter, 1590.

* Mr. Hansard nominated the two first persons to enjoy this annuity.

SECTION VII.

*THE PRESS, Mr. M'Creery's Poem—Annotations by the Editor of this Work, with Biographical Notices of Eminent Printers—Faust—Jenson—Aldus—The Printer's Chapel—Antient Customs of the Printing Office—Baskerville—Bodoni—Bulmer—Bensley—M'Creery—Moxon—Enemies to the Press—Pleasing Digression—Prose Letter in Rhyme—Other Samples of Typo-poetical Correspondence—*ADDENDA*—Biographical Notices of the Bowyers—Griffith Jones—John Nichols—Mr. Hughes—Mr. Strahan—The Hansards.*

THE PRESS,

A POEM,

BY JOHN M'CREERY.

ARGUMENT.

"*ADDRESS to the Shade of Guttemberg—State of Man before the invention of Letters—Efforts of Ambition to perpetuate his Fame—Birth of Letters—Tribute to the Memory of those who first applied themselves to Study—Awaking of Science—Astronomy, Painting, Sculpture, Poetry, began to improve—Celebrated Characters who flourished before the invention of Printing—The Office of Scribe among the Antients—Libraries instituted—Printing discovered at Mentz by Guttemberg—Described—Faust and Schoeffer assist him—The former invents moveable Types—Thrown into Prison at Paris, under suspicion of dealing with the Devil—Diffusion of the Art over the Continent of Europe—Caxton introduces it into England—Practises it in Westminster Abbey—Origin of the Printer's Chapel—Antient Customs in a Printing-house—Respectable mention of celebrated Printers—Apostrophe to Warriors, on their abuse of the Press—Characters by whom the Art is degraded—Prostitution of the Public Journals—Pitt's Statue, and his hostility against the Liberty of the Press—Bonaparte tramples on the Rights of Man, and extinguishes the Freedom of the Press in France—Conclusion.*

"SIRE of our Art, whose genius first designed
This great memorial of a daring mind,
And taught the lever with unceasing play
To stop the waste of Time's destructive sway,
The Verse, O great progenitor! be thine;
Late, but sincere, where all thy worth shall shine:

What Printer, ever since thy distant days,
Hath touch'd the strings responsive to thy praise?*
With trembling hand the boon let me bestow,—
Hear, then, ye nations! what to him ye owe.

"Say what was man ere by the PRESS refined,
What bonds his glorious energies confined?
Did Genius, thro' the dull chaotic waste,
Court the fair forms of beauty and of taste.
Tho' strong his ardor, and tho' pure his love,
Small was the sphere wherein those powers could move.
The meteor-beam that science lent mankind,
Darting effulgence on th' inquiring mind,
Oft gleam'd—a weak and transitory light,
A moment glared—then sunk in endless night:
Man knew no means to hold the flitting race
Of Art's coy forms, that courted his embrace;
His only hope in Memory's stinted power,
The oral record—changing every hour.

"In early times, our PRESS as yet unknown,
The artist carved his hieroglyphic stone;
The lasting pile Ambition sought to raise,
To gratify his ardent thirst of praise;
Whilst round him mould'ring ruins mock'd his care,
And show'd th' oblivious fate his toil must share;
Whilst Genius pensive sat—in thought profound,
Mourning the spoils of ages scattered round;
Benighted Reason slumber'd in the breast,
Lull'd by the gloom of Ignorance to rest;
The trackless age with rapid pinion flew,
And dropp'd the veil that closed the distant view.

* No *English* printer, I believe, until Mr. M'Creery,—but one foreign printer has. ARNOLD DE BERGEL wrote a poem, *Encomion Chalcographiæ*, Moguntiæ, 1541, 4to. containing 454 heroic verses on the origin of printing. He indicates Strasburgh as the country of the first printer, Guttemberg; or, at least, as the place where he made his first attempts. He adds, that Guttemberg worked more successfully at Mayence, with the assistance of Faust, and especially of Schoeffer, who cut the matrices and cast letters from them. Marchand has reprinted his poem in p. 21, and following, of his Histoire de l'Imprimerie: it is also to be found in Woffius's Monum. Typogr. Vol. 1, pp. 13, *et seq.*—*Horne*, p. 473.

"Muse! to my pensive hours for ever dear,
With brighter scenes my languid spirits cheer,—
From man, unletter'd, as I willing turn,
Let me the guardian hand of Heav'n discern.
Blest be his shade, in endless realms of light,
Who bade the Alphabet dispel our night;
Those wond'rous symbols that can still retain
The phantom forms that pass along the brain,
O'er unsubstantial thought hold strong control,
And fix the essence of th' immortal soul.
Man unreluctant meets the general doom,
His mind, embalm'd, defies th' o'erwhelming tomb,
Lives in fresh vigour through succeeding years,
Nor yields its powers while Nature guides the spheres.

"Where swelling Nile his fertilizing stores
O'er thirsty Egypt unexhausted pours,
Where Plenty, rising from the reeking soil,
Bends with the load, that asks no human toil,
And every charm luxuriant Nature brings,
Spontaneous from her teeming bosom springs,
Industrious Science form'd the great design,
To range in words the alphabetic sign;
On language permanence and life bestowed,
Of written thought the first rude effort show'd;
And as the rays of Morning's golden eye
Streak with resplendent light the eastern sky,
So with mild beam the Sun of Learning rose,
That round us now a noon-tide lustre throws.

"Immortal spirits! ye who first could feel
For Learning's pure delights a holy zeal;
Who first the ever-wasting lamp renew'd,
Wrapt in the joys of thoughtful solitude;
And raised the temple on eternal base,
To Knowledge sacred and the human race;
Thro' drear Oblivion's boundless vortex tost,
Sages! we mourn your great productions lost;
Yet be your worth in every distant clime
Acknowledged thro' the thickening mists of time.

"Now Science, rising from her trance profound,
Benignant calls her numerous children round;

As Study wills—commands them to impart
The secret means that show her wond'rous art.

" Astronomy, in heavenly beauty bright,
Traced the pure glories of celestial light;
Where clust'ring worlds in countless numbers throng,
To distant systems distant suns belong:
Beheld the flaming comet's course sublime,
And rolling orbs that mark the lapse of time;
With her thro' Nature's works the mortal soar'd,
Then sunk astonish'd and his God adored.

" Perspective soon to Painting lent her aid,—
Her mellowing tints in softening distance fade;
The beamy forms more captivating shone,
Thro' the dull gloom by shapeless shadow thrown.
Whate'er the skill that guides th' immortal hand,
Fate but a moment leaves at his command.
The kindred Muse no irksome bondage fears,
Her song the great events of circling years.

" 'Twas then the Sculptor sought a noble goal,
Strong emulation fired his ardent soul;
Celestial Beauty wond'ring at his art,
As from the block her sister angels start.

" Bewitching Verse her mild enchantments threw,
The fine nerve trembling as her spells she drew;
Enliven'd by her harp's symphonious sound,
Gay Fancy's airy offspring sported round.

" Led by this band in paths untrod before,
Man sought the depths of Nature's boundless store;
As dropt the film from his obstructed sight,
And Ign'rance fled in deepest shades of night,
He saw the gifts conferr'd by bounteous Heaven,
Felt the strong impulses to Reason giv'n,
And still, as Taste inspired or Genius will'd,
The arduous aim, the high behest fulfill'd.

" Delightful task, to trace the rolls of fame,
Rich in the trust of many an honoured name;

The lights that with such various splendour shone,
Ere to the world our glorious art was known:
First he, who found on Sinai's mountain placed
The Decalogue, by God's own finger traced;
Lycurgus, too, who, calm in Spartan bowers,
Matured profound his legislative powers;
And he, the sage whom virtue must revere,
Great Solon, to Athenian freedom dear.
Thou Father,* erst—who with celestial fire
Woke to immortal strains the Grecian lyre,
And thro' thy country led the wond'ring throng,
Enraptured with thy bold heroic song;
As all the passions rose at thy command,
A God! they cried, directs that powerful hand.
Next Sappho wild, with love and verse inspired,
Told the mad passion that her bosom fired.
Anacreon, steep'd in love's delusive dream,
Sung the pure joys of wine's bewitching stream:
And he, who won from fame the high reward,
The Mantuan Virgil, sweetest Roman bard;
And Horace, keen, who love and satire join'd,
With raging Juvenal, of fiery mind.

"Demosthenes, on whose persuasive tongue
The awful spells of elocution hung,
Scorning his thankless country's venal strife,
Seized the drugg'd bowl to end the woes of life;
And Tully, thou of yet more hapless fate,
The victim of a foul corrupted state,
To save the miscreant who could bid thee bleed,
Why did thy powerful voice so well succeed?

"Cease toil, that asks for greater powers than mine,
While hosts like these in endless glory shine;
Nor thou, my Muse, a partial list select,
And names unnumber'd leave to cold neglect;
Not thine the skill, whate'er thy heart may feel,
To trace their labours or their worth reveal;
As well attempt, with mad advent'rous lay,
To sing each star that throngs the milky way.

* Orpheus.

"Fathers of Science! who with careful hand
Planted the germs in every distant land,
And mid the barbarous waste of elder times
Foster'd the tender shoots in cheerless climes,
Your ceaseless labours man shall still regard,
Tho' scant the harvest which those toils reward;
Unknown the matchless powers which we possess,
Unknown the PRINTER and unknown his PRESS.

"Incessant strove the Scribe's industrious race,
Lingering and labouring with uncertain pace;
Slow from his hands the works of genius came;
His proudest use to feed th' unsteady flame;
So greatly circumscribed his power appears,
A volume oft hath ask'd the toil of years.
The intellectual feast for wealth prepar'd,
With humble life no generous bounty shar'd,*
Depriv'd, by pallid Want's depressing power,
Of cultivated Thought's delusive hour;
And as dull Labour toil'd the livelong day,
Th' unconscious soul in stupid dozings lay.

"Yet why despise, in cold unfeeling strain,
The means by which such glorious works remain?
Or blame the hoarding spirit that confin'd
To private use the early fruits of mind?
Soon swell'd with nobler aim the generous heart,
As letters spread their humanizing art;
When gorgeous fanes and palaces inclosed
The sacred trust—for public use dispos'd,
Collected Knowledge ope'd her ample stores,
Which yet the eye of curious search explores,
And left—to call the powers of genius forth,
Those great memorials of surpassing worth.

"O MENTZ! proud city, long thy fame enjoy,
For with the PRESS thy glory ne'er shall die,
Still may thy guardian battlements withstand
The ruthless shock of War's destructive hand;

* As to the value of books in the days of Cicero, see *antè*, page 68.

Where GUTTEMBERG with toil incessant wrought
The imitative lines of written thought;
And as his art a nobler effort made,
The sweeping lever his commands obey'd;
Elastic balls the sable stains supply,
Light o'er the form the sheeted tympans fly;
The beauteous work returning leaves unfold,
As with alternate force the axle roll'd.

"His bosom now unbounded joys expand,
A printed volume owns his forming hand;
The curious work from sculptur'd blocks imprest,
The rising glories of his art confest.

"To give to distant times a name more dear,
To spread the blessing thro' a wider sphere,
SCHOEFFER and FAUST with kindling ardor fired,
Lent the strong aid that thirst of fame inspired;
The stubborn block, with rude unchanging form,
One end could answer, but one task perform,
Till FAUST, with all his powers of genius ripe,
Struck the fine die, and cast the moving type,
That ever, as the curious artist will'd,
In some new station some new office fill'd.

"A host of Scribes, whose slow progressive art
No public use to genius could impart,
Astonish'd saw with what profusive hand
The PRESS could send its labours thro' the land;
And mark'd—while deepest wonder all confest,
The strong identity that each possest;—
How Power and Ignorance their prey pursue
He felt—to whom our second praise is due:
When the new treasure FAUST to Gallia bore,
Her sons with jealous eyes the work explore;
The capital convulsive terror shook,
Scared at the numbers of the sacred book;
Nor could the holy theme their fears dispel
Of some foul dealings with the guests of hell.

Forth to the awful judgment hall they sped,
And, bound in chains, the culprit artist led.
A pious chief, in crozier'd armour drest,
His keen abhorrence of the wretch exprest:
'Thou, who hast dealt with blackest imps below,
'Leagued against man with man's eternal foe, *(a)**
'Repent,—and be to us the means explain'd,
'Say by what art these volumes thou hast gain'd.'
FAUST with undaunted heart the prelate view'd,
His eye bespoke a spirit unsubdued:
'With no infernal power did I consult,
'Of human labour this the great result.'
But quickly to the prison's drear abode
They sent the Printer and the Word of GOD. *(b)*

"With ancient MENTZ, our central point of art,
In the proud race the neighbouring cities start,
Spreading, as light diverges from its source,
The great invention through a distant course;
Thronging around, the candidates for fame
To breathe new life in countless numbers came,
Press for the meed which we alone bestow,
The source from which immortal honours flow.

"Brothers of old! ye shades that I revere
With strong enthusiastic love sincere,
The task was yours to spread the work around,
To yon great continent's remotest bound;
Th' establishments arose with rapid growth,
Whence SPIRA, JENSON, ALDUS, *(c)* prov'd their worth.

"As we behold upon the pall of night
The starry rays of lucid trembling light,
Well pleas'd Britannia saw, across the stream,
Rising o'er Gallic lands, the cheerful beam,
And long'd to share the renovating blaze,
That could so quick the flowers of genius raise.

* See Addenda.

"O Albion! still thy gratitude confess
To CAXTON, founder of the BRITISH PRESS;
Since first thy mountains rose, or rivers flow'd,
Who on thine isles so rich a boon bestow'd?
Yet stands the chapel in yon Gothic shrine,
Where wrought the father of our English line;
Our art was hail'd from kingdoms far abroad,
And cherish'd in the hallow'd house of GOD;
From which we learn the homage it receiv'd,
And how our sires its heavenly birth believ'd;
Each printer hence, howe'er unblest his walls,
E'en to this day his house a CHAPEL calls. *(d)*

"Time, of the flying years in rapid chase,
Saw our laborious brotherhood increase;
And as his pinion waved upon the blast,
Still met again the soul of ages past.
As farther spread our telegraph of mind,
In closer union distant nations join'd;
Thus flourish'd taste, as emulation reign'd,
Thus worth and talents their high station gain'd.

"From antient passing on to modern times,
Welcome the names that rise to court my rhymes;
Whom first record amid so great a throng,
In the rude strains of this inglorious song?
O yield, ye living, to the great who rest,
Sharing celestial joys among the blest;
Columbia, rising into wealth and power,
Unites her fame with FRANKLIN'S natal hour.
FRANKLIN, who struck with awe his country's foes,
And great before a venal senate rose.—
Artists who in your humbler stations stand,
Earning your bread by Labour's active hand,
He left the lesson to your useful class,—
Unheeded shall the great example pass? *

* No—His great example has not passed unheeded; and since the names that rose to court the rhymes of Mr. M'Creery did not include those of BOWYER and NICHOLS, I shall enjoy the honour of placing them in due order in my *addenda* among the most distinguished members of the profession.

Like yours his sinewy arm the lever sway'd,
And Independence her blest tribute paid.

"O BASKERVILLE! the anxious wish was thine
Utility with beauty to combine;
To bid th' o'erweening thirst of gain subside;
Improvement all thy care and all thy pride:
When BIRMINGHAM, for riots and for crimes
Shall meet the long reproach of future times,
Then shall she find, amongst our honour'd race,
One name to save her from entire disgrace. *(e)*

"The deep affection that my heart o'erwhelms,
Learn thou, BODONI, *(f)* in Italian realms;
May'st thou forget thy country's fallen state,
And fate extend thy life a lengthen'd date;—
Nor DIDOT less, whom France is proud to own,
Tho' stain'd her honour and her freedom gone:
Say, when your lands with wasting tempest shook,
And Peace and Hope the awful hour forsook,
What power preserv'd ye mid the bloody scene?
Did not some shelt'ring ægis intervene?
Ye, as of old the virtuous Meshech, came
Uninjured from the dread devouring flame.

"Dread warrior chiefs! who, as the bolt is hurl'd,
That spreads destruction o'er a trembling world,
Scour with resistless speed th' ensanguin'd plain,
Where busy Death rejoices o'er the slain!
Our art enslav'd still aids your wasting course,
Nerving the blood-stain'd arm of lawless force.
O may our race no more the wrongs bewail!
Be free our PRESS as Heaven's enlivening gale!

"Pleased as we now the grateful strain pursue,
Two sons of science pass before our view,
Who to their works perfection can impart,
And snatch from barb'rous hands our sinking art;
Their skill the sharp fine outline still supplies;
From vellum leaves their graceful types arise;

And whilst our breasts the rival hopes expand,
BULMER and BENSLEY well-earn'd praise demand.

" How sweet to yield the tribute of applause,
When sterling worth with strong attraction draws;
Or what more pleasing to the feeling mind
Than living wreaths around his brows to bind!
But in our days what hordes of blockheads claim
The proud distinction of the PRINTER'S name;
Around his PRESS, like hungry beasts of prey,
They swarm, whom every trade hath cast away;
Without the knowledge that can e'er improve,
The sordid aim their active passions move.
Their servile uses and their country's shame,
How frequent now the public prints proclaim.
The base pursuits that cunning can devise,
Strong advocates their hireling page supplies,
The dread of chains and slavery dispel,
And as they're brib'd th' obedient conscience sell;
Tho' for their crimes and for the common good,
The patriot yet may wade in seas of blood.

" Aided by thee—O Art sublime! our race
Spurns the opposing bonds of time and space,
With fame's swift flight to hold an equal course,
And taste the stream from reason's purest source;
Vice, and her hydra sons, thy powers can bind,
And cast in virtue's mould the plastic mind;
Yet some there are—whose dread unhallow'd hand,
To deeds of guilt thine energies command,
For giddy youth's unguarded hour prepare
The luring tale—the foul immoral snare.

" Ye pests—whose means of daily bread are built
On ignorance and bold unblushing guilt;
Whose tales the unsuspecting wretch decoy,
Of life diseaseless thro' an age of joy;
Strengthening some wayward passion of the mind
With drugs that leave the dire disease behind!

Pills of specific fame—see misery takes—
Hope flies—the slender thread of being breaks;
Lotions that promise ever blooming charms;
The nostrum that the hand of death disarms;
With embryo life can swell the barren womb,
And clothe old age in youth's bewitching bloom;
Drops—syrups—balms—of gold the essence pure,
Gileads and anti-drinks the world allure.
Whate'er compound the artful quack may hatch,
Folly or squalid wretchedness to catch,
Will find the ready vouchers for its worth,
In all the journals that the day brings forth.

"O irksome task! in sad desponding strains,
To trace the direful ills our art sustains;
Power's sleepless hosts, impelled by jealous rage,
In guilty fear th' unnatural warfare wage.—
Call off, O PITT! thy statue-raising bands,
Already formed the threatening monster stands,
Its ponderous base our subjugated PRESS,
Chains and war-trophies well thy deeds express;
Whilst on its head in glistening shew appears,
A diadem of crystallizing tears.
No servile purpose slavery could obtain,
E'er on our annals left so black a stain.—
Thy paper-taxes of o'erwhelming weight,
Have prest upon us like the arm of fate;
Now register'd, now ticketed, we move,
Our slightest works the double label prove. *(g)*
Such rage as thine mad Omar once inspir'd,
Whose hand the Alexandrian treasure fir'd.

"And thou dread traitor to the sacred cause,
The source of equal rights and equal laws,
Whose rapid course gigantic strides advance
O'er prostrate justice and o'er conquer'd France;
Whose palsying hands the struggling PRESSES hold;
Whose twisted manacles their forms enfold;
When Gallic valour thunder'd on her foes,
Was it for thine aggrandizement she rose?

Shall man, obedient to thy tyrant nod,
Degraded yield the image of his God?
But worst and foulest of thy countless crimes,
That damn thee now and to all future times,
Thy dread command across the western wave,
Loads with fresh chains the proud reluctant slave,
And to his quivering lip the cup applies,
Which as he tastes, he sickens and he dies.

"Come Friendship, thou that bring'st the healing balm
To soothe my feelings, and my spirits calm,
Thou that hast blest me in my humble sphere
With all the joys existence can endear
And in the rare community hast placed,
By tenderest love—and matchless talents graced;
What more would man in this terrestrial ball?
Our friendships and our home—our world we call.
I see the arts their softening influence shed,
Whilst commerce moves by milder spirits led,
The gentle passions thro' her bosom steal,
With angel smiles for man she learns to feel.
Grateful to me when memory appears,
Raising the shadows of my former years,
To hail the great productions of my Press,
Spreading the mind that distant times shall bless.
Lamented Bard—who late on Mersey's shore
Heard with delight the dashing surges roar,
Fortune—relenting—bade thy spirits hail,
When thy last notes were trembling on the gale.
And Rushton—thou—whose independent soul,
Nor ills of life—nor adverse fates controul,
Tho' solemn darkness shroud thine orbs of sight,
Strong are thy beams of intellectual light,
For like immortal Milton—thine the doom,
To strike thy harp amid the cheerless gloom.
Him too I sing—who by Cam's classic stream,
Enjoys the visions of the poet's dream;
Whose lyric muse by rapturous thought inspir'd,
A noble effort of my art required.

Pleas'd, I LORENZO,* BURNS,† and POGGIO‡ claim,
While taste and genius charm, still dear to fame;
And may my hours with like employment glide
Smooth down the channel of life's ebbing tide;
Be such the task as it hath been of late,
When CURRIE§ mourn'd the hapless poet's fate;
Or RATHBONE,|| when his voice inspires the throng,
Or ROSCOE¶ pours his soul in freedom's song.

* Life of Lorenzo de Medici, by Wm. Roscoe, Esq.

† Dr. Currie's Edition of Burns's Works.

‡ The Life of Poggio Bracciolini, by the Rev. Wm. Shepherd, of Gateacre, near Liverpool.

§ In allusion to the late Dr. Currie's admirable Life of the celebrated bard.

|| A distinguished member of the Society of Friends, and an advocate for the genuine principles of English liberty, now no more.

¶ This name will be reverenced whilst letters, art and liberty, are cherished in the world. Mr. Holland, in his poem "The Hopes of Matrimony," (p. 33) alluding to Mr. Roscoe says

. . . . the bard, whose classic chariot bore
Italia's muse from Arno's flowery shore;
Whose genius could, in native strains, unsphere
The Tuscan numbers on his country's ear;
ROSCOE, who lives with polish'd Leo's fame,
And great LORENZO's Medicéan name.

The works of the above authors were executed by Mr. M'Creery in the same style of excellence as before referred to.

NOTES AND ADDENDA

TO

THE POEM.

(a) "Leagued against man with man's eternal foe,

"In this adventure we seem to have the origin of the opinion, that printers have occasion for the assistance of a supernatural personage in the progress of their labours, with whom all the rest of the world is most anxious to avoid any very intimate acquaintance. Had we no other complaints against his Satanic Majesty, than that of assisting John Faust to bring to perfection the Art of Printing, we certainly should have no right to stigmatize him as being of so malignant a disposition as he is commonly represented. The Printer's Devil is a character almost identified with the origin of the art, and we may consider ourselves peculiarly fortunate in having a guardian exclusively assigned to us, from whom, notwithstanding his general bad conduct to other people, we have so little to apprehend, and who is commonly our faithful assistant, both in our labours and in our pleasures. From hence also the legend of the *Devil and Doctor Faustus.*"—*M'Creery.*

This humble agent of the press has been humourously celebrated in the following ode, which appeared in the London Magazine, June 1823.

ODE TO THE PRINTER'S DEVIL,

Who brought me a proof to be corrected, and who fell asleep while it was undergoing correction:—being *an Ode founded on fact!*

'Fallen Cherub!'—*Milton's Paradise Lost.*

I.

Oh! bright and blessed hour;—
The Devil's asleep!—I see his little lashes
Lying in sable o'er his sable cheek:
Closed are his wicked little window sashes,
And tranced is Evil's power!
The world seems hush'd and dreaming out a-doors;
Spirits but speak;
And the heart echoes,—while the Devil snores;

II.

Sleep, baby of the damn'd!
Sleep, where no press of trouble standeth by!
Black wanderer amid the wandering,
How quiet is thine eye!
Strange are thy very small pernicious dreams,—
With shades of printers cramm'd,
And pica, double pica, on the wing!
Or in cold sheets thy sprite perchance is flying
The world about,—
Dying,—and yet, not like the Devil dying—
Dele,—the *evil* out!

III.

Before sweet sleep drew down
The blinds upon thy *Day and Martin* eyes,—
Thou didst let slip thy slip of mischief on me,
With weary, weary sighs:
And then, outworn with *demoning* o'er town!
Oblivion won thee!
Best of compositors!—Thou didst compose
Thy decent little wicked self,—and go
A Devil-cruiser round the shores of sleep—
I hear thee fathom many a slumber-deep,
In the waves of woe:
Dropping thy lids of lead,
To sound the dead!

IV.

Heaven forgive me!—I
Have wicked schemes about thee, wicked one;
And in my scheming, sigh,
And stagger under a gigantic thought:
"What if I run my pen into thine eye,
And put thee out!
Killing the Devil will be a noble deed,
A deed to snatch perdition from mankind—
To make the Methodist's a stingless creed—
To root out terror from the Brewer's mind—
And break the bondage which the Printer presses—
To change the fate of Lawyers—
Confirm the Parson's holy sinecure—
Make worthless Sin's approaches—
To justify the bringing up addresses
To me, in hackney coaches,
From operative Sawyers!"

V.

"To murder thee"—
Methinks—"will never harm my precious head"—
For what can chance me, when the Devil is dead!
—But when I look on thy serene repose,
Hear the small Satan dying through thy nose,—
My thoughts become less dangerous and more deep:
I can but wish thee everlasting sleep!
Sleep free from dreams,—
Of type, and ink, and press, and dabbing ball—
Sleep free from all
That would make shadowy devilish slumber darker,
Sleep free from Mr. Baldwin's Mr. Parker!

VI.

Oh! Fare thee well!
Farewell—black bit of breathing sin!—Farewell
Tiny remembrancer of a Printer's hell!
Young Thing of darkness, seeming
A small poor *type* of wickedness, *set up!*
Full is thy little cup
Of misery in the waking world!—So dreaming
Perchance may now *undemonize* thy fate
And bear thee, Black-boy, to a whiter state!
Yet mortal evil is, than thine, more high:—
Thou art *upright* in sleep;—men sleep,—and *lie!*
And from thy lids to me a moral peeps,
For *I correct my errors,—while the Devil sleeps!*

NED WARD, JUN.

(b) They sent the printer, and the Word of God.

Faust, finding himself imposed upon by Gutenberg, and disappointed of the money expected; and wanting either will or power to sue him in that city where he fled, formed a stratagem to raise himself a fresh supply, which succeeded according to his wishes; for he went to Paris with some of his finest vellum Bibles, one of which was sold to the king for 750 crowns, and is still to be seen in the royal library of Paris, a master-piece in that kind; another was bought by the archbishop of Paris for 300 crowns; but as people were unwilling to give so exorbitant a price, he offered some of the last for 50 crowns, and less, in hopes to have disposed of them all before he was discovered. It is not indeed to be supposed that they were all equal in the ornamental part; yet the beauty of the work, the elegancy of the flower pieces, initial letters, &c., the variety of the finest colours intermixed with gold and silver, with which they were exquisitely variegated, made the

purchasers fond of showing them to their acquaintance; as every one thought the whole world could not produce such another. 'Tis reported that the archbishop, thinking his Bible worth his majesty's seeing, carried it to him, who viewed it with surprize, and in return shewed his own: upon a stricter examination, and comparing them together, they found that the ornaments were not exactly the same; but as to the other part supposed to be written, they observed such a conformity in the number of pages, lines, and words, and even letters, as soon convinced them that they were done by some other method than transcribing: besides two such Bibles were the work of a man's life-time to transcribe; and upon enquiry, he was found to have sold a much greater number. Hereupon orders were given to apprehend Faustus, and prosecute him as a conjurer. * * * * * * However, the parliament of Paris thought fit to make an arrêt in favour of him, and to discharge him from all further prosecution, in consideration of his noble invention; and as I am credibly informed, a salary was paid by that crown to Faust's descendants for many years after, as a reward for his sufferings and merit; this was the end and success of that expedition, and proved at length very advantageous to him, and made some amends for the melancholy hours of his confinement and the terrors of approaching death.

(c) Whence Spira—Jenson—Aldus—prov'd their worth.

John de Spira and Nicholas Jenson, were both printers at Venice about the middle of the 15th century, and were rivals for the claim of each being the first printer in that city (see Sec. iii. p. 80). Jenson, however, was the most eminent of the two; he was a native of France, and an engraver in the Mint, at Tours, about the middle of the 15th century. He established his printing-office at Venice, in 1470. The art of printing is greatly indebted to Jenson for some of its most essential improvements; particularly in planning and reducing to its present proportions the Roman character; the productions of his press are reckoned among the chef-d'oeuvres of the typographic art, to which he may be considered as having given the finishing stroke. His *Ciceronis Epistolæ ad Atticum, Brutum, et ad Quintum Fratrem;* 1470, folio, is considered by Mr. Dibdin as the first production of his press; the uncommon beauty of its execution has been a constant theme of admiration among bibliographers. A splendid copy is in lord Spencer's collection. *See Horne,* p. lviii.

Aldus. Three printers of this family are particularly distinguished, viz.: Aldus Manutius, frequently called the elder Aldus. About 1488, he established his printing-office at Venice; he was a singularly eminent typographer, who, while he gave the most sedulous attentions to his printing-office, carried on a very extensive correspondence with the literati of Europe, explained the classics to a numerous auditory of students, and also found time to compose various works, which are characterized by profound learning and extensive variety, and to his genius and efforts we are indebted for the various improvements in the typographic art. He invented the beautiful

letter now generally in use, and known by the name of *Italic* or Aldine.—*Horne, App.* lxi.

2. Paul Manutius, the third son of the elder Aldus, born in 1512, was in no respect inferior to his father in learning and typographic skill. The reputation thus acquired gained for him, in 1556, the direction of the printing-office of the Venetian academy; and in 1562 he was invited to Rome, to direct the printing-office of the Vatican. He died in 1594.

3. Aldus, his son, born in 1547, did not disgrace the illustrious name of Manutius; but it appears that he cultivated literary pursuits more than the art of printing. He was, however, well skilled in the art, and executed many valuable works. He was director of the Vatican printing-office. He died in 1597. With him terminated a family, who have justly been termed the glory of literature and typography; and whose reputation will continue so long as one single volume exists of the numerous and excellent works which they printed during the long period of a century. *See Horne,* p. lx, lxxxi.

John Jannon was a celebrated printer at Sedan, in the 17th century. Works of his execution are highly valued and in much request, on account of the smallness and neatness of the type; which has thence been termed *Sedanoise,* and corresponds with our *Diamond.* His works are remarkably correct. *Horne,* p. lxxxi.

To the above names of typographical celebrity, I shall add that of the

Elzevirs. This was a numerous typographic family. No less than twelve exercised the art in Holland in the course of the 17th century; and seven of them were distinguished by the number and beauty of their editions, viz.:

1. Louis Elzevir, Leyden, 1595 to 1616. He was the first printer who distinguished the vowels *u* and *i*, from the consonants v and j.

2. Isaac, Leyden, 1617 to 1628.

3 & 4. Bonaventure and Abraham, 1626 to 1652.

5. John, son of Abraham, 1652 to 1661.

6. Louis (second) son of Isaac, at Amsterdam, 1640 to 1662.

7. Daniel, son of Bonaventure, Leyden and Amsterdam, 1652 to 1680.

The Elzevir editions have long been proverbial for the clearness, delicacy, and perfect equality of the characters, and excellence of the press-work. *Horne,* p. lxxxi, &c.

(d) E'en to this day his house a Chapel calls.

The origin of applying this appellation to a printing-office has been guessed at by many writers. Mr. M'Creery says, "the title of Chapel to the internal regulations of a printing-office originated in Caxton's exercising the profession in one of the chapels in Westminster Abbey, and may be considered as an additional proof, from the antiquity of the custom, of his being the first English printer."

I have already had occasion, and shall still have more, to quote from the publication of Mr. Moxon, from which I am enabled to hand down the peculiar customs formerly observed with respect to that curious tribunal, termed

"a Chapel," as well as some other singularities in practice among the members of the art, about two hundred years ago. Though, from the change that has taken place in the habits of men and circumstances of trade, as well as from other matters which have happened in more recent times, and which shall be alluded to in the course of the present note, the ancient customs will not apply to modern practice; yet, as historical memoranda, such things afford an opportunity of contrasting the past with the present, and thus become a subject of some amusement; and hence it may be presumed, that the pages thus occupied will contribute to many in the profession, and to many more who may yet enter it, both instruction and gratification.

Ancient Customs used in a Printing-house.

"Every printing-house is by the custom of time out of mind, called a Chapel, and all the workmen that belong to it are members of the Chapel; and the oldest freeman is father of the Chapel. I suppose the style was originally conferred upon it by the courtesie of some great churchman, or men (doubtless when chapels were in more veneration than of late years they have been here in England), who, for the books of divinity that proceeded from a printing-house, gave it the reverend title of Chapel.

"There have been formerly, customs and bye-laws made and intended for the well and good government of the Chapel, and for the more civil and orderly deportment of all its members while in the Chapel; and the penalty for the breach of any of these laws and customs, is, in printers' language, called a Solace.

"And the judges of these solaces, and other controversies relating to the Chapel, or any of its members, were, plurality of votes in the Chapel. It being asserted as a maxim, that, 'the Chapel cannot err.' But when any controversy is thus decided, it always ends in the good of the Chapel.

"1. Swearing in the Chapel—a solace.

"2. Fighting in the Chapel—a solace.

"3. Abusive language, or giving the lie in the Chapel—a solace.

"4. To be drunk in the Chapel—a solace.

"5. For any of the workmen to leave his candle burning at night—a solace.

"6. If the compositor let fall his composing-stick, and another take it up—a solace.

"7. Three letters and a space to lie under the compositor's case—a solace.

"8. If a pressman let fall his ball, or balls, and another take it up—a solace.

"These solaces were to be bought off, for the good of the Chapel; nor were the prices alike, for some were 12*d.* 6*d.* 4*d.* 2*d.* 1*d.*, according to the nature and quality of the solace. But if the delinquent proved obstinate or refractory, and would not pay his solace at the price of the Chapel, they *solaced* him thus—

"The workmen take him by force and lay him on his belly, athwart the

correcting stone, and hold him there, while another of the workmen, with a paper-board, gives him 10*l.* *and a purse*, viz. eleven blows on his buttocks, which he lays on according to his own mercy; for tradition tells us that about fifty years ago one was *solaced* with so much violence that he presently p—d blood, and shortly after died of it.

"These nine solaces were all the solaces usually and generally accepted; yet in some particular Chapels the workmen did, by consent, make other solaces, viz.

"That it should be a solace for any of the workmen to mention joining their penny, or more, a-piece to send for drink.

"To mention spending chapel money till Saturday night, or any other before agreed time.

"To play at quadrats, or excite any of the Chapel to play at quadrats, either for money or drink.

"This solace is generally purchased by the master-printer, as well because it hinders the workmen's works, as because it batters and spoils the quadrats, for the manner how they play with them is thus,—they take five, or seven, or more, *m* quadrats (generally of the English body), and holding their hand below the surface of the correcting stone, shake them in their hand and toss them upon the stone, and then count how many *nicks* upwards each man throws in three times, or any number of times agreed on; and he that throws most wins the bet of all the rest, and stands out free, till the rest have tried who throws fewest nicks upwards in so many throws, for all the rest are free, and he pays the bet.

"For any to *take up a sheet*, if he received *copy-money*; or if he received no copy-money, and did take up a sheet, and carried that sheet or sheets out of the printing-house till the whole book was printed off and published.

"Any of the workmen may purchase a solace for any trivial matter, if the rest of the Chapel consents to it. As if any of the workmen sing in the Chapel, he that is offended at it may, with the Chapel's consent, purchase a penny or two-penny solace for any workman's singing after the solace is made; or if a workman or a stranger salute a woman in the Chapel, after the making of the solace, it is a solace of such a value as is agreed on. The price of all solaces to be purchased is wholly arbitrary in the Chapel; and a penny solace may perhaps cost the purchaser six-pence, twelve-pence, or more, for the good of the Chapel. Yet sometimes solaces may cost double the purchase, or more: as if some compositor have (to affront a pressman) put a wisp of hay in the pressman's ball-racks; if the pressman cannot well brook this affront, he will lay six-pence down on the correcting stone, to purchase a solace of twelve-pence upon him that did it; and the Chapel cannot in justice refuse to grant it, because it tends to the good of the Chapel; and being granted, it becomes every member's duty to make what discovery he can, because it tends to the further good of the Chapel; and by this means it seldom happens but the aggressor is found out.

"Nor did solaces reach only the members of the Chapel, but also strangers

that came into the Chapel and offered affronts or indignities to the Chapel, or any of its members; the Chapel would determine a solace: example—it was a solace for any to come to the King's printing-house and ask for a ballad:

"For any to come and inquire of a compositor whether he had news of such a galley at sea:

"For any to bring a wisp of hay, directed to any of the pressmen:

"And such strangers were commonly sent by some who knew the customs of the Chapel, and had a mind to put a trick upon the stranger.

"Other customs were used in the Chapel, which were not solaces, viz. every new workman to pay half-a-crown, which is called his *benvenue*. This being so constant a custom, is still looked upon by all workmen as the undoubted right of the Chapel, and therefore never disputed; he who has not paid his *benvenue* is no member of the Chapel, nor enjoys any benefit of Chapel-money. If a journeyman wrought formerly in the same printing-house, and comes again to work in it, he pays but half a benvenue. If a journeyman *smout* more or less in another printing-house, and any of the Chapel can prove it, he pays half a benvenue.

"I told you before that abusive language, or giving the lie, was a solace; but in discourse, when any of the workmen affirm any thing that is not believed, the compositor knocks with the back corner of his composing-stick against the lower ledge of his lower-case; and the pressman knocks the handles of his ball-stocks together, thereby signifying the discredit they give to his story.

"It is customary for all the journeymen to make every year new Paper-Windows, whether the old will serve again or no; because that day they make them, the master-printer gives them a *Way-goose*, that is, he makes them a good feast, and not only entertains them at his own house, but besides gives them money to spend at the ale-house, or tavern, at night; and to this feast they invite the corrector, founder, smith, joiner, and ink-maker, who all of them severally (except the corrector in his own civility) open their purse-strings and add their benevolence (which workmen account their duty, because they generally choose these workmen) to the master-printer's; but from the corrector they expect nothing, because the master-printer choosing him, the workmen can do him no kindness. These *way-gooses* are always kept about Bartholomew-tide; and till the master-printer have given this way-goose,* the journeymen do not use to work by candle-light.

"If a journeyman marry he pays half-a-crown to the Chapel.

"When his wife comes to the Chapel, she pays six-pence, and then all the journeymen join their two-pence a-piece to welcome her.

"If a journeyman have a son born, he pays one shilling; if a daughter, six-pence.

* The derivation of this term is not generally known. It is from the old English word *wayz*, stubble. A stubble goose is a known dainty in our days. A wayz-goose was the head dish at the annual feast of the forefathers of our fraternity. "WAYZ-GOOSE, a stubble-goose, an entertainment given to journeymen at the beginning of winter.' *Bailey's Dict. 3rd Edit.*

"The father of the Chapel drinks first of Chapel drink, except some other journeyman have a *token*, viz. some agreed piece of coin or metal, marked by consent of the Chapel, for then, producing that token, he drinks first; this token is always given to him who in the round should have drank, had the last Chapel drink held out; therefore, when the Chapel drink comes in, they generally say, who has the token?

"Though these customs are no solaces, yet the Chapel excommunicates the delinquent; and he shall have no benefit of Chapel-money till he have paid.

"It is also customary in some printing-houses that if the compositor or pressman make either the other stand still through the neglect of their contracted task, that then he who neglected shall pay him that stands still as much as if he had wrought.

"The compositors are jocosely called galley-slaves, because allusively they are, as it were, bound to their galleys; and the pressmen are jocosely called horses, because of the hard labour they go through all day long.*

"An apprentice, when he is bound, pays half-a-crown to the Chapel; and when he is made free, another half-crown, but is yet no member of the Chapel; and if he continue to work journey-work in the same house, he pays another half-crown, and is then a member of the Chapel.

"A founding-house is also called a Chapel; but I suppose the title was originally assumed by founders, to make a competition with printers. The customs used in a founding-house are made as near as may be to those of a printing-house; but because the matter they work on, and the manner of working is different, therefore such different customs are in use as are suitable to their trade; as, first, to call metal, lead—a forfeiture; secondly, a workman to let fall his mould—a forfeiture; thirdly, a workman to leave his ladle in the metal, noon or night—a forfeiture.

"The printers of London, masters and journeymen, have every year a general feast, which, since the re-building of Stationers'-hall, is commonly kept there. This feast is made by four stewards, viz. two masters and two journeymen; which stewards, with the collection of half-a-crown a-piece of every guest, defray the charges of the whole feast; and as they collect the half-crowns, they deliver every guest a ticket, wherein is specified the time and place they are to meet at, and the church they are to go to, to which ticket is affixed the name and seals of each steward.

"It is commonly kept on or about May-Day; when, about ten o'clock in the morning, they meet at Stationers'-hall, and from thence go to some church thereabouts; four whifflers (as servitures) by two and two walking before with white staves in their hands, and red and blue ribbons hung belt-wise upon their left shoulders; these go before, to make way for the Company; then walks the beadle of the Company of Stationers, with the Company's staff in his hand, and ribbons, as the whifflers, and after him the divine (whom the stewards before engaged to preach them a sermon) and his reader;

* Why not, by the same reasoning, because they, as it were, are bound to their horses?—Q. Ed.

then the stewards walk by two and two, with long white wands in their hands, and all the rest of the company follows till they enter the church; then divine service begins, anthems are sung, and a sermon preached to suit the solemnity, which ended, they in the same order walk back again to Stationers'-hall, where they are immediately entertained with the city-weights and other music; and as every guest enters he delivers his ticket, which gives him admittance, to a person appointed by the stewards to receive it.

"The master, wardens, and grandees of the company (although perhaps no printers) are yet commonly invited, and take their seats at the upper table, and the rest of the company where it pleases them best, the tables being furnished with variety of dishes of the best cheer; and to make the entertainment more splendid, is ushered in with loud music; and after grace is said (commonly by the minister that preached the sermon) every one feasts himself with what he likes best, while the whifflers and other officers wait with napkins, plates, beer, ale, and wine, of all sorts, to accommodate each guest according to his desire; and to make their cheer go cheerfuller down, are entertained with music and songs all dinner time.

"Dinner being near ended, the king's and other healths is begun by the several stewards at the several tables, and goes orderly round to all the guests; and whilst these healths are drinking, each steward sets a plate on each table, beginning at the upper end and conveying it downwards to collect the benevolence of charitable minds towards the relief of printers' poor widows; and at the same time each steward distributes a catalogue of such printers as have held stewards ever since the feast was first kept, viz. from the year of Christ, 1621.

"After dinner, and grace said, the ceremony of electing new stewards for the next year begins, therefore the present stewards withdraw into another room, and put garlands of green laurel, or of box, on their heads, and white wands in their hands, and are again ushered out of the withdrawing-room by the beadle of the Company, with the Company's staff in his hand, and with music sounding before them; then follows one of the whifflers, with a great bowl of white wine and sugar in his right hand, and his whiffler's staff in his left; then follows the eldest steward, and then another whiffler, as the first, with a bowl of white wine and sugar before the second steward; and in like manner another whiffler before the third, and another before the fourth; and thus they walk, with music sounding before them, three times round the hall; and in a fourth round the first steward takes the bowl of his whiffler, and drinks to one (whom before he resolved on) by the title of Mr. Steward Elect; and taking the garland off his own head puts it upon the steward-elect's head, at which ceremony the spectators clap their hands, and others so drum with their feet, that the whole hall is filled with noise, as applauding the choice; then the present steward takes out the steward elect, giving him the right hand, and walks with him, hand in hand behind the three present stewards another round about the hall; and in the next round, as aforesaid, the second steward drinks to another with the same ceremony as the first did;

and so the third steward, and so the fourth, and then all walk one round more hand in hand about the Hall, that the company may take notice of the stewards elect. And so ends the ceremony of the day; such as will, go their ways, but others that stay are diverted with music, songs, dancing, farcing, &c. till they all find it time to depart."—*Moxon.*

Another custom peculiar to a printing-office is termed *washing;* and during the keeping up of which ceremony, if persons happen to reside in the neighbourhood of the office whose nerves are not made of stern stuff indeed, they will hardly fail of getting them shivered. Washing is had recourse to upon two occasions,—either for rousing a sense of shame in a fellow-workman who had been idling when he might have been at work; or to congratulate an apprentice upon the hour having arrived that brings his emancipation from the shackles of his subordinate station, and advances him to manhood. Upon the former occasion the affair generally ends with a wash of one act, but upon the latter the acts are commonly repeated with a degree of violence proportioned to the expectancy of a liberal treat at night. Perhaps the following description may afford some small idea of the nature and effect of the performance. Every man and boy attached to the department of the office to which the person to be washed belongs, is bound in honour, upon a given signal, to make in the room the greatest noise he possibly can with any article upon which he can lay hands. A rattling of poker, tongs, shovel, and other irons, is harmoniously accompanied with running reglet along the bars of the cases, shaking up of the quoin drawers, rolling of mallets on the stone, playing the musical quadrangle by chases and crosses; and, in the press-room, slapping the brayers upon the ink blocks, a knocking together of ball-stocks, hammering the cheeks of the presses with sheep's feet,* &c. &c. &c., in short every one uses the utmost means he can devise, to raise the concert of din and clatter to the highest possible pitch of hideous discordancy by means of the implements aforesaid; and then the whole is wound up with a finale of three monstrous obstreperous huzzas. The short way with me of preventing this infernal uproar has been the making known a resolution of instantly turning out of the employ the object on whose account soever it might be raised,—a disgrace which no fraternity would be willing to bring down upon a worthy member.

So far the *ancient customs*—I shall now state their *remains* in modern practice, as given by Mr. M'Creery, written before the convulsions in the trade had given a different tone and character to the good understanding between journeyman and employer, which was the intent and foundation of the antient customs, now scarcely known to the rising typographer but by name.

"In extensive houses, where many workmen are employed, the *calling a Chapel* is," says Mr. M'Creery, "a business of great importance, and generally takes place when a member of the office has a complaint to allege against any of his fellow-workmen, the first intimation of which he makes to *the Father of the Chapel,* usually the oldest printer in the house, who, should he

* These technical expressions are duly explained in the course of the work.

conceive that the charge can be substantiated, and the injury supposed to have been received is of such magnitude as to call for the interference of the law, summonses the members of the Chapel before him at the *imposing stone*, and there receives the allegations and the defence in solemn assembly, and dispenses justice with typographical rigour and impartiality. These trials, though they are sources of neglect of business, and other irregularities, often afford scenes of genuine humour. The punishment generally consists in the criminal providing a libation by which the offended workmen may wash away the stain that his misconduct has left upon the body at large. Should the plaintiff not be able to substantiate his charge the fine then falls upon himself, for having maliciously arraigned his companion,—a mode of practice which is marked with the features of sound policy, as it never loses sight of *the good of the Chapel*."

These Chapels were formerly the means not only of regulating to proper behaviour the various tempers and characters that might be introduced into a printing-office, but of establishing a mutual charity for the purposes of relief in cases of sickness or misfortune; in order to effect which, each man subscribed a certain trifling sum, a penny or two, weekly, to which the master regularly added, perhaps, five or ten times as much, by which contributions a fund was formed, called "The Box." When any member was visited by calamity, a petition was drawn up—a Chapel called—deliberation followed—and such a sum was voted as was thought necessary for temporary relief.

In process of time this excellent institution, where "man from man could find relief," was perverted to evil purposes, by being made a strong engine of combination against the masters. In the first place, it was decreed that no man, however long he might have subscribed to them, should have relief from these funds if he had failed in his allegiance to *The Committee*, that is, if he were not prepared to blindly join in every combination and *strike* that might be proposed, in order to force the masters to advance the prices of journeyman's work; to limit their apprentices; and to submit to such regulations as might be dictated by the invisible committee. The consequence was, the masters refused to subscribe to, or to be collectors and treasurers of a fund wielded for their own subjugation. The *Chapel Inquisitions* were then converted to scenes of drunken revelry, and every man's candle, provided at the cost of the master, placed on the stone to illuminate the feast; or perhaps to a tribunal, to decide who was or was not a fair man, and should or should not be suffered to earn his bread and support his family, if he happened to have one, honestly by that profession to which he had been brought up. During this state of things masters frequently found the decision of their own Chapel to be, that every man who was, or might hereafter be, put upon such a particular work, must immediately leave his employ; and, as a step further, that every man in the house must cease work until their demands were complied with. This usurpation was endured till the men became much more arbiters of the price, quality, and time of doing a work than their masters were. The latter were forced into means to defend themselves. Chapels

were in most houses abolished; and *a turn-out* taking place about the same time, many masters were obliged to clear their houses of every journeyman, and take apprentices, and to become themselves their teachers, or get them taught in the best way they could; and few masters who have retained the command of their houses, and wish to be independent, have since suffered, or ever will suffer, Chapels to be revived in them.

(e) One man to save her from entire disgrace.

"JOHN BASKERVILLE, the beauty of whose editions have commanded and received universal admiration, was born at Wolverley, in Worcestershire, in 1706. In the year 1726 he kept a writing school at Birmingham; but in 1745 he engaged in the japanning business, and became possessed of considerable property. His inclination for letters induced him to turn his attention towards the press, "he spent many years in the uncertain pursuit,—sunk 600*l.* before he could produce one letter to please himself, and some thousands before the shallow stream of profit began to flow. At length the productions of his press grew into esteem. He died in Jan. 1775, and four years afterwards his types (of which he had, in 1765, unsuccessfully endeavoured to dispose in France) were purchased by a literary society at Paris, and were afterwards employed on a splendid edition of Voltaire's Works."—*Chalmers's Biog. Dict. vol.* iv. *pp.* 107, 108. [See more of Baskerville, as a letter-founder, in next Section.]

"The typography of Baskerville," Mr. Dibdin remarks, "is eminently beautiful; his letters are in general of a slender and delicate form, calculated for an octavo, or even a quarto, but not sufficiently bold to fill the space of an imperial folio, as is evident from a view of his great Bible. He united, in a singularly happy manner, the elegance of Planten with the clearness of the Elzevirs; his 4to. and 12mo. Virgil, and small prayer-book, or 12mo. Horace of 1762, sufficiently confirm the truth of this remark. He seems to have been extremely curious in the choice of his paper and ink, the former being in general the fruit of Dutch manufacture, and the latter partaking of a peculiarly soft lustre, bordering upon purple. In his Italic letter, whether capital or small, he stands unrivalled; such elegance, freedom, and perfect symmetry being in vain to be looked for among the specimens of Aldus and Colinæus."—*Dibdin on the Classics*, vol. ii. p. 336. See *Horne*, p. xc. xci.

In addition to the works noticed above, there is an edition of Milton's Paradise Lost, "Birmingham: printed by John Baskerville, for J. & R. Tonson, in London, M.DCC.LIX." (4to.) now before me, most admirably printed. The type (pica) is manifestly an improvement upon the "slender and delicate" mentioned by Mr. Dibdin; I should think it, on the contrary, approaching to the *embonpoint*, and admirably calculated, by extending the size (if in exact proportion), for works of the largest dimensions. The italic possesses much room for admiration. The ink and press-work are beautifully

BASKERVILLE.

clear and uniform,—a scrutinizing look throughout the volume has been unable to discover any one page of a shade difference in colour from another. The paper is very fine, all rag, no cotton, no bleach, no plaster, not machine-made; it is thick, rather yellow, compared to what is doctored up in the present day, and of the description called wove. He printed the letter-press to Mr. Hunter's great work on anatomy, large folio, which exhibits equally good work upon a larger scale.

The means by which he gave effect to his work are excluded from the province of printing, in these days of improvement, by the triple incongruities of *fine* as possible—*quick* as possible—*cheap* as possible. I have been informed recently of a truth at which I have long since guessed, namely, that his trade of *japanning book-work* was conducted as follows:—He had a constant succession of hot plates of copper ready, between which, as soon as printed (aye, as they were discharged from the tympan) the sheets were inserted; the wet was thus expelled, the ink set, and the trim glossy surface put on all simultaneously. But in those times it was not necessary, in order to keep the bodies and souls of masters and men from uncoupling, to print, by one pair of men, three thousand five hundred sheets a day, or have machines to do two thousand in an hour.

This work will, in my opinion, bear a comparison, even to its advantage, with those subsequently executed by the first typographer of our age. A few pages forward will be found mention of two works, executed by Mr. Bulmer, some five or six and thirty years subsequent to Mr. Baskerville, as high-wrought specimens of the art, in all its component branches. As to the type, the modern artist (Mr. Martin) has made an effort to cut the cerephs and hair strokes excessively sharp and fine, the long *s* is discarded, and some trifling changes are introduced, but the letter does not stand so true nor line so well as Baskerville's; and as to the italic, if the pages which contain the arguments to the several poems be compared, the Birmingham artist will be found to far excel. The paper (by Whatman) is of great substance, and its excessively delicate whiteness is by no means agreeable to the eye, it is as irritating to dwell upon as snow itself; the colour of Baskerville's paper is far more pleasant. There is a clearness, a soberness, a softness, and at the same time a spirit, altogether harmonizing in Baskerville's book that neither of the others, with which I am comparing it, can, I think, fairly claim.

His speculations in printing appear to have yielded him more of honour than of profit. He obtained leave from the University of Cambridge to print a bible in royal folio, and two editions of the Common Prayer; but that learned body appears to have had a stronger inclination for making their privilege conducive to worldly gain, than for earning fame by the encouragement of printing. The University exacted from Mr. Baskerville *twenty pounds* per thousand for the octavo, and *twelve pounds ten shillings* per thousand for the duodecimo editions of the prayer; and the Stationers' Company, with similar

liberality, took *thirty-two pounds* for THEIR permission to print one edition of the psalms in metre, which was necessary to make the prayer-book complete. Baskerville certainly brought the art to a degree of perfection till then unknown in this country. He trusted nothing to the manufacture of others. He was at once his own manufacturer of "ink, presses, chases, moulds for casting, and all the apparatus for printing" [See his Letter to Horace Walpole, 2nd Nov. 1762]; and, according to Mr. Derrick, he made his paper also. He carried on, at the same time, the japanning business to a great extent, in the most elegantly-designed and highly-finished manner. "He could well design, but procured others to execute." "He was much of a humourist; idle in the extreme; but his invention was of the true Birmingham model—active." "Taste accompanied him through the different walks of agriculture, architecture, and the fine arts." "His carriage, each pannel of which was a distinct picture, might be considered the pattern-card of his trade; and it was drawn by a beautiful pair of cream-coloured horses."

It is evident, from a passage in the letter before-mentioned, that he was quite weary of printing. "This business of printing," says he, "which I am heartily tired of, and repent I ever attempted:" and he once made an offer, "on the condition of never attempting another type." Little or nothing was printed by him after the year 1765. He died without issue, Jan. 8th, 1775. Agreeable to the singularity of his opinions, and by an express direction contained in his will, he was buried in a tomb of masonry in the shape of a cone, under a windmill in his garden belonging to a handsome house which he had built at the upper end of the town of Birmingham. That building was destroyed in the riots of 1791, but his remains continued undisturbed till the year 1821. Upon his death the ground was sold, and passed through various hands to the present possessor, who has cut a canal through it, and converted the remainder into wharf land. The mausoleum was some time ago taken down, and it was then understood that the body had been removed, which supposition proves to have been unfounded; for, a short time previous to Christmas 1820, some workmen, who were employed in getting gravel, discovered the leaden coffin. It was, however, immediately covered up, and remained undisturbed till May, 1821, when the spot having been let for a wharf, it became necessary to remove the coffin; it was, in consequence, disinterred, and deposited in Messrs. Gibson and Sons' warehouse, where it was opened for inspection. The body was found to be in a singular state of preservation, considering that it had been under ground about forty-six years. It was wrapped in a linen shroud, which was very perfect and white. On the breast lay a branch of laurel, faded but entire, and firm in texture: there were also leaves and sprigs of bay and laurel in other parts of the coffin, and on the body. The skin of the face was dry but perfect. The eyes were gone, but the eyebrows, eye-lashes, lips and teeth remained. The skin on the abdomen and body generally was in the same state as that on the face. An exceedingly offensive and oppressive effluvium, strongly resembling the smell of decayed

cheese, arose from the body, and rendered it necessary to close the coffin in a short time, and it has been since re-interred.

It was at first supposed, by those who examined the body, that some artificial means had been employed to protect it from putrefaction; but nothing presented itself to prove that this was the case. The putrefactive process must have been arrested by the leaden coffin having been sealed hermetically: and thus the access of the air, which is essential to the process of putrefaction, was prevented. Had the modern chemico-mechanical process of Messrs. Donkin and Gamble been known at that period, or the antiseptic properties of the pyroligneous acid, it is possible that it might have been applied in the case which has been described, and the body might have perhaps been found as fresh as it was on the day he died.

His widow, in 1775, wholly declined the printing business, but continued the letter-founding till 1777. "Many efforts were used after his death to dispose of the types; but no purchaser could be found in the whole commonwealth of letters. The Universities rejected the offer, and the London book-sellers preferred the types of Caslon and Jackson. The property lay a dead weight, till purchased by a literary society at Paris, in 1779, for £3,700.

(f) Learn thou, BODONI, *in Italian realms—*

"The extraordinary beauty of many of the works which have been executed by BODONI at PARMA, justly entitle him to rank with the most celebrated printers of the present day; nor can it be overlooked, that his labours have given a stimulus even to English exertion: in such estimation has his press been held throughout Europe, that authors in distant countries, who were anxious to have their works introduced to the public in a handsome dress, have transmitted them to his care, under all the disadvantages attendant upon being printed from under their own eye, and in a foreign nation. Before the late successful efforts in England to bring printing to perfection, instances have occurred when we have ourselves paid this humiliating tribute to Italian excellence."—*M'Creery; note, p.* 16.

The works above alluded to I suppose to be,

1. *The Castle of Otranto,* a Tale, by LORD ORFORD, 4to. with plates; which work was printed by Bodoni, for Mr. Edwards of Pall-Mall, in a most splendid manner, in 1791.

2. *Thomson's Seasons,* royal 4to. and small folio, 1794. Only 175 copies.

3. *Gray's Poems,* 1793, 4to. 100 on large paper and 200 on common.

4. *Gray Elegia Inglese, sopra un cimetero campestre; con due versione Italiane, ed altra Latina,* 1793, 4to.

5. *Gray's Elegy in a Country Church-yard,* with the Italian translation, 4to. 1793. Only 100 copies.

6. *Lines addressed to Victory,* by CORNELIA KNIGHT, with the Italian translation, 1793, 4to. 100 copies.

"The knowledge of this circumstance is of itself sufficient to silence the outcry against the splendid manner in which some of our printers have succeeded in wiping away this national stain. It is certainly a labour as commendable to adorn with all the graces of art the productions of the mind, which are intended to be eternal; as it is to decorate, with so much care, the transitory forms of personal beauty. The real sources of the injury which literature has sustained in this country, and of the impediments to the diffusion of knowledge, are to be found in the various restrictions which government have imposed upon the press, and in the destructive influence of unsparing taxation."—*M'Creery.*

Few persons of our profession in England have any idea of the general beauty, and in many instances, uncommon splendour of typographical effect displayed in editions which for upwards of thirty years have been issuing from the press of M. Bodoni. The patronage of the rich and powerful is the nurse that fosters to perfection the arts and sciences; and the list* of the chief productions of this eminent typographer shows that he has experienced, and not in a sparing manner, the warm succour of the affluent. Dr. Smith, in his "Tour on the Continent," 2nd Edit. vol. iii. says, 'A very great curiosity, in its way, is the Parma printing-office, carried on under the direction of M. Bodoni, who has brought that art to a degree of perfection scarcely known before him. Nothing could exceed his civility in showing us numbers of the beautiful productions of his press, of which he gave us some specimens, as well as the operations of casting and finishing the letters. The materials of his types are antimony and lead, as in other places, but he shewed us some of steel.' [Query, were they not punches?] 'He has sets of all the known alphabets, with diphthongs, accents, and other peculiarities in the greatest perfection. His Greek types are peculiarly beautiful, though of a different kind of beauty from those of old Stephens, and perhaps less free and flowing in their forms. His paper is all made at Parma. The manner in which M. Bodoni gives his works that beautiful smoothness, so that no impression of the letters is perceptible on either side, is the only part of his business that he keeps secret."

I shall mention a few of his most celebrated works by which some idea may perhaps be formed of their nature and peculiarities.

1. *Anacreontis Teii Odaria;* Greece, 1784, small quarto. The first of his editions of Anacreon, most beautifully executed in *cursive* or Italic Greek; only sixty copies, as presents: now extremely rare and valuable. The Royal Library at Paris possesses an uncommonly fine copy on Dutch paper.

2. *The same:* 1791, 16mo. justly called by M. Renouard, a *bijou typographique:* 25 copies only.

3. *Callimachus,* Greek and Italian; 1792. A chef-d'œuvre of typography.

4. *Homer's Iliad,* in Greek, 1811; 3 vols. *royal folio:* without exception the most splendid of all Bodoni's editions. Each of the three volumes, of which the work consists, comprizes upwards of 370 pages containing the text

* See Horne, vol. ii. p. xcv to cviii.

only. Six years were employed by M. Bodoni in preparing for this impression. The edition consisted of only 140 copies, some of which are on fine vellum paper; and one, a dedication copy, presented to Buonaparte, when Emperor Napoleon, is on vellum, and is understood to possess a degree of brilliancy hitherto unparalleled. It is probably deposited in the Royal Library at Paris.—See more of this catalogue in *Horne*, p. xcv—cviii.

Although in strict conformity with historical truth we are obliged to confess that, in works of splendour, British typography did not take the lead, yet it is gratifying to observe that the superb Shakspeare, Milton, and other works by Mr. Bulmer, Macklin's splendid edition of the Bible, and Bowyer's magnificent edition of Hume, by Mr. Bensley, justly vie with the most costly productions of Bodoni.*

"*The Dramatic Works of William Shakspeare*, 1792—1801, 9 vols. folio, and a volume of large engravings. This magnificent work, which is worthy of the unrivalled compositions of our great dramatic bard, will remain, as long as those compositions shall be admired, an honourable testimony of the taste and skill of the individuals who planned and conducted it to its completion. No work of equal magnitude (I speak of the typographical part) ever presented such complete accuracy and uniform excellence of execution. There is scarcely one perceptible shade of variation from the first page of the first volume to the very last page of the work, either in the colour of the ink, the hue of the paper, or the clearness and sharpness of the types. The text was revised by G. Steevens and Isaac Reed. Mr. Bulmer possesses the proof sheets of the whole work, on which are many curious remarks, by Steevens, not always of the most courteous description; also scraps of poetry, graphic sketches, &c. &c."—*Dibdin's Decam.* vol. ii. p. 384.

It is scarcely necessary to observe that, through the fame of the above-named work, the title of "The Shakspeare Printing Office," was conferred on Mr. Bulmer's establishment in Cleveland-row. From this press was published, in 1795, POEMS, by Goldsmith and Parnell; and in 1796, Somerville's CHASE—all large quarto, and very fine specimens of the art of printing, and particularly as uniting the block-printing with the type.

Mr. Bulmer had a select foundry on purpose for his work, conducted by Mr. W. Martin, of Birmingham, successor to Baskerville. Mr. M'Creery uses types from the same matrices. His beautiful specimen of printing before referred to, viz. "The Press," as well as the other works mentioned in page 297 are exemplifications of the principle, although I must not be understood as giving an unqualified approbation of the peculiar cut of the letter.

The poems of Goldsmith and Parnell are illustrated with wood engravings, by the Messrs. BEWICK—the Chase with those of the elder BEWICK, the younger having died in the interval of these publications. As specimens of xylography, these prints may be said to stand unrivalled by any, either ancient

* For a further account of splendid typographical works which have issued from the British press, see *Dibdin's Bibliothecal Decameron*, vol. ii.

or modern. At the same time, it is due to Mr. Hole, a pupil of the Bewicks, to say, that the rich efforts of his genius, with which Mr. M'Creery's poem is embellished, are worthy of every praise. These designs are of a totally different class from the former, Bewick's being calculated to show the powers of the art in giving the effects of light and shade, and perspective, to landscape scenery; while Hole's exhibits its capacity in pourtraying the human figure, and in highly poetical personifications.

This country has also an honour and a treasure to boast of in Mr. Whittaker's "Magna Charta," printed in LETTERS OF GOLD, with illuminations. His manner of operating is yet a secret. The Society for the encouragement of Arts offered Mr. W. a premium for his ingenuity, upon the condition, as is usual, of his making the process *known;* but Mr. W., aware of the importance of keeping it secret, declined the premium. There are some copies on vellum, beautiful, splendid, and characteristic, beyond any similar work (I had almost said ancient as well as modern) which it has ever been my good fortune to behold! Indeed, taking it "all in all," those who have not seen such a union of typographical and graphical skill as those illuminated copies display, can have no idea of the extraordinary felicity of their execution."—*Dibdin's Decam.* ii. 416.

One reason which may be given for the elegant appearance of the works of Bodoni, and those of other printers of Italy and France, is the strict conformity of the faces of their various-sized types. The cutting of the punches and casting of the type, are not on the continent, as in this country, a distinct profession. The most eminent printers are designers and casters of the types they print from, as was Baskerville of our own country,* [See preceding note, p. 312] and thus an uniformity of taste and design is conspicuous throughout every size of type used in their works; hence also they acquire a settled and distinct character; and as they can have excellent paper, ink, and workmanship, all at considerably less expense in those countries than we can in this; as their climate, generally speaking, acts also more favourably upon the ink than ours, their works have that beautiful and perfect appearance, which we find it difficult and highly expensive to equal. Very few printing establishments in this country that undertake fine works of any magnitude, are supplied with types from one foundry alone; and if any were so supplied, not one of our foundries have kept their type of one uniform design, and adhered to the same rule of proportion through all the various gradations of size.†

* An eminent company of printers at Haerlem have their foundry so complete that they have issued a specimen-book, which, some few years ago, was brought to London, to claim the attention of printers in this country: but, however deservedly eminent the Dutch were in the early ages of typography, and however much we may have been indebted to them with regard to some peculiar types, yet the unremitting attention which has been paid in England and Scotland to the improvement of the art has been so eminently successful as to have left no room for the encouragement of foreign types, and no instance has come within my knowledge of the Dutch founders having met with any success in this country.

† Mr. Joseph Moxon, the most scientific man who has written upon printing, gives great commendation to the Dutch types of the sixteenth and seventeenth centuries in this very particular. Speaking of those cut by Christophel Van Dijck, of Amsterdam, he says, "To my wonder and astonishment I have ob-

The emulation to excel in cutting a new type of any peculiar feature, and the various fashions which, unfortunately for the printers, have been started and patronized, have left the specimen of a British letter-founder a heterogeneous compound made up of fat-faces and lean-faces, wide-set and close-set, proportioned and disproportioned, all at once crying "Quousque tandem abutêre patientia nostra?"† One founder, Mr. Figgins, has, however, broken the spell by showing specimens in our own *vulgar* tongue: still the "Quousque" must be partly retained in order to show, by comparison, the getting in, or driving out powers of his founts.

(g) Our slightest works the double label prove.

The enactments of this law will be commented upon hereafter. The shackles thus imposed upon our rightful liberty, might, perhaps, with the modifications afterwards conceded, or if not construed to affect us further than to the extent avowed by Mr. Pitt upon the introduction of the bill into the House of Commons, by the substitution in the construction of the Act of the conjunctive particle *and*, for the disjunctive particle *or*, have been borne upon the statute book without any serious inconvenience or inroad upon the freedom of the press. In truth, it is but doing justice to the equitable principle professed by Mr. Pitt, in his speech on moving for the bill, to say that it was perfectly analogous to that for which I am contending. "I now come," said he, "to the third head, which is the *most important, as it relates to the liberty of the press.* We cannot too highly prize that sacred liberty when we consider that it has been instrumental in bringing our constitution to that envied perfection which it possesses. Yet it must also be admitted that, when abused, the most fatal consequences have ever resulted from it. It has been the great principle of the constitution that the liberty of the press should flourish, but

served V. Dijck's pearl Dutch letters in glasses that have magnified them to great letters, and found the whole shape bear such true proportion to his great letters, both for the thickness, shape, fats, and leans, as if with compasses he could have measured and set off in that small compass every particular member, and the true breadth of every fat and lean stroak in each letter, not to exceed or want (when magnified) of letter cut to the body it was magnified to."—*Moxon, Mec. Ex.* vol. ii, § ii, p. 16.

† *How long after all this will you abuse our patience?* Perhaps this *equivoque* will appear the best reason that can be given for supposing that no new specimen of type can be exhibited but by this scrap of Latin, which contains about the very worst selection of characters that could have been chosen to exemplify the perfection of a fount. The proportion of vowels and liquids to other letters is much greater in the Latin language than in the English, and it must therefore be a fallacious mode of making us duly acquainted with the relative elegance and order of the various forms of types adapted chiefly for our own language. Mr. Dibdin says, "The Latin language, either written or printed, presents to the eye a great uniformity or evenness of effect. The m and n, like the solid surloin upon our table, have a substantial appearance: no garnishing with useless herbs, or casing in coat of mail, as it were, to disguise its real character. Now, in our own tongue, by the side of this m or n, or at no great distance from it, comes a crooked, long-tailed g, or a th, or some gawkishly ascending or descending letter of meagre form, which are the very flankings, herbs, or dressings, of the aforesaid typographical dish, m or n. In short, the number of ascending or descending letters in our own language, the p's, l's, th's, and sundry others of perpetual recurrence, render the effect of printing much less uniform and beautiful than in the Latin language. Caslon, therefore, and Messrs. Fry and Co., after him, should have presented their 'specimens ' of printing types' in the *English* language: and then, as no disappointment could have ensued, so no imputation of deception would have attached." *Decam.* Vol. ii, pp. 581, 582.

it is also clear from the nature of the principle itself, and for the security of the press, that *the author* OR *publisher* of every work should be amenable to the laws of his country. This doctrine is founded on the nature of justice, for every one must be responsible for the act which he commits, and, reasoning this way, we only place the *author* OR *publisher* in the situation of those who know that their conduct ought to be regulated by the laws of the country to which they are subject. I wish to make it impossible that any publication should be circulated without attaching the responsibility to the *author* OR *publisher* of it. It is but a measure of common right to let the name of the author or publisher be affixed to the publication, that any person who shall be injured may know to whom he is to look for redress. But in order to make the measure effectual, and prevent the press from becoming an engine of corruption and innovation in the hands of factions who are ready to circulate cheap publications adapted to inflame and pervert the public mind, it will be necessary to keep a general register, not only of the presses used by printers, but of those in the possession of private persons. It is also my intention to oblige persons in the first instance, to register the types, and the names of the persons to whom they are sold, that a knowledge of all the parties may be more easily obtained. I must also observe, the names and licences to be changed as often as the property is shifted. There may exist a necessity for the adoption of further precautions; it is not for me to anticipate them, but as far as I have stated, I think the remedy adequate to the evil complained of." *Speech of Mr. Pitt, April* 19, 1799. *See Hansard's Parl. Deb., vol.* xxxiv, *p.* 987.

Now, I would ask, in what light are we to regard that construction of the act, which has made the printer AND publishers responsible, as well as the author, in case of conviction for libel, even when the author is known and avowed, and actually brought into court to answer for the crime, in the event of a jury declaring in favour of the prosecutor?

In cases where the author might not be forthcoming, or where particular circumstances might render a prosecution against him unavailable for the purposes of public justice, the publisher might be the next looked to, and if similar obstacles were found to exist in regard to the publisher, then proceed against the printer. But when the author is avowed, and no proof or circumstance wanting that might be necessary to the satisfaction of offended justice, surely it must be deemed the acme of injustice to prosecute author, printer, and publisher, or all the publishers and sellers, for one and the same offence —an offence of which some of them, at least, had in all probability been wholly unconscious—passing in the common course of business the offensive work, without having read it; or, having read it, wanting the knowledge to discern that it might be possible for legal subtlety to construe what was read into libel.

On this subject I speak *feelingly*: and, as one case in point is worth a thousand presumed possibilities, here is one to the purpose. In 1810, Mr. Cobbett wrote an article for his Political Register relative to the flogging of

some of the sons and servants of English farmers, who were serving their period in the local militia at Ely, in Cambridgeshire, for a trifling dispute or grumbling, construed by military law into mutiny, about an unpaid allowance for knapsacks. The ceremony was executed under a guard of the *German Legion*, which regiment happened to be then stationed at New-market. At that time it was thought but a degree less than sedition to speak even disrespectfully of our foreign mercenaries, especially if Germans; and sir Vicary Gibbs, then attorney-general, commenced a prosecution against Mr. Cobbett, *author*—Hansard, *printer*—Bagshaw, *news-publisher*—and Budd, *bookseller*; for one and the same offence. Cobbett pleaded the general issue, and put himself upon his defence: Hansard, Bagshaw, and Budd, having no stomach for denying their respective avocations, or that they did print, or publish, or sell, the work in question; and, from nods and winks, having an idea of being excused the calling-up for judgment, even in case of a jury finding for the prosecutor (especially if they gave the attorney-general no trouble in proving *their* share of the crime), determined to take the chance of the verdict: and therefore said, we will trouble you with no defence—we let judgment go by default. But still further—Hansard was made a witness in the same cause for which he was to be tried as a culprit. He was served with a subpœna, to produce the MS. and give evidence of the hand-writing, as a witness against Cobbett. However, Cobbett admitted the authorship; and the witness was not wanted. A verdict of guilty was found; and to the astonishment of all England, Cobbett, Hansard, Bagshaw, and Budd, were all brought up for, and received judgment of the court. My share of this sharp practice was three months imprisonment in the King's Bench, and to find sureties for two years of good behaviour: that of Bagshaw and Budd, two months each, and sureties also. The paper in which the article appeared, be it remembered, was published on Saturday morning, and the MS. was received from the author, in piece-meal, by the posts of Thursday and Friday, so that there was no possibility of contemplating, or of taking *an opinion learned in the law*, before hundreds of the number were circulated.

One pleasing reflection emanating from this affair has continued, ever since, to radiate on my mind; and I trust it ever will to the last hour of my memory. Though, after all, I can only claim the honour of having been the mechanical agent in this publication, and of having suffered *three months* durance on account of it, yet, as a participator thus far, I rejoice that it should have been the means of bringing the energetic mind of the real representative of his constituents (sir Francis Burdett) to bear upon the consideration of the practice of flogging in the British army; and that his great exertions in forcing the frequent agitation of the question in the House of Commons, has done so much towards saving our warriors from the disgraceful laceration inflicted, often for the most venial offences, by the lash of the cat-o'-nine-tails.

The only effect this persecution had upon me, was that of confirming my mind more strongly than ever upon the necessity of reforming, among other

abuses, the monstrous stretch of power assumed by the crown in executing *ex-officio* informations, and in packing of special juries, ——— but —— I stop. ——— Perhaps some of my readers may say I have already gone too far upon matters of a political nature, for a book such as I am about to offer. Let my excuse, if any is wanted, be placed upon the immense importance of the subject, as it affects the liberties of my country—nay, of the whole world —in the trespass thus made upon the liberty of the press; and as I am conscientiously persuaded that a perfectly free press is as essential to our existence and welfare, as a free and independent state, as the freedom of the air we breathe is to the life and vigour of the organs of our frame, so do I think it right to inculcate, as far as I am able, this faithful sentiment of my heart.

When the above was written I was in hopes that enough had been done to satisfy its enemies, and that the press was not destined to endure further aggressions. But, with pity for those who think such innovations upon its liberty necessary for their own ends, I add, to what has been before said, another paragraph concerning new enactments that have been fixed upon the statute-book during the ministry of lord Castlereagh; and compared with which, all former severities vanish into trifles. In the regular exercise of his calling in order to obtain a livelihood, the British printer has been made a perpetual candidate for imprisonment, banishment, or transportation. He is moreover constrained to involve friends as sureties before he can undertake some particular branches of his business;* and thus subject himself to the payment of ANY FINE that may be imposed for offences not definable by a written law, but arbitrarily engendered in the breast of any attorney-general—magnified in the microscopic eyes of a special jury—and assuming some monstrous shape on being exposed to the fiat of any time-serving judge. As long as the opinions of persons holding the reins of control continue to shift with the aspects of the times, as they *ever will;* and until the terms *sedition* and *blasphemy* shall have been strictly defined, which they *never will be,* so long will the printer, subjected to the present restrictions, be at the mercy of caprice and crown influence.

As our posterity will have either to resist or submit to this stalking over the press, with a design to trample down all its liberty in this country, it is proper that they should be apprized of the remonstrances made to the legislature in hopes of averting the calamity, and of being able to transmit a right which all good men have ever held sacred, and which has always been esteemed the life-blood of British liberty. At the close of this note shall therefore be inserted the Resolutions, afterwards embodied in petitions from the booksellers of London to both Houses of Parliament; a paper which, for eloquence and argument, is not to be surpassed by any production of the same nature. Its effect was, to place Botany Bay one stage more distant by the intervention of such a trifle as "*simple banishment*"† at your own expense, to

* See the Newspaper Stamp Act, Dec. 30, 1819.
† See Speech of Lord Castlereagh in the House of Commons.

a foreign country; yet the principle of securities and punishments remains the same. But the acts themselves shall also be inserted in the appendix.

At a Meeting of BOOKSELLERS and PRINTERS resident in the City of London and the Neighbourhood thereof, held at the London Coffee-House, Ludgate Hill, on the 15th of December 1819; to consider the Provisions of a Bill now before Parliament, for the more effectual Prevention and Punishment of blasphemous and seditious Libels;

JOSEPH BUTTERWORTH, ESQ. in the Chair;

It was unanimously Resolved,

I. THAT we have observed with concern, the increased and extensive circulation of certain seditious and blasphemous libels which have of late been printed and published, and are anxious that such remedy may be provided as to the wisdom of parliament shall seem fit; but that we nevertheless view with great apprehension and alarm the provisions of a bill now under the consideration of the House of Commons, entitled "An Act for the more effectual Prevention and Punishment of blasphemous and seditious Libels," so far as it is proposed that it should be thereby enacted, that if any person shall, after the passing of that act, be legally convicted of having composed, printed, or published, any blasphemous libel, or any such seditious libel as therein mentioned, and shall, after being so convicted, offend a second time, and be thereof legally convicted, such person may, on a second conviction, be adjudged, at the discretion of the court, either to suffer such punishment as may now by law be inflicted in cases of high misdemeanors, or to be banished from the United Kingdom and all other parts of his majesty's dominions, for such term as the court, in which such conviction shall take place, shall order, or to be transported to such place as shall be appointed by his majesty for the transportation of offenders for any term not exceeding — years; and that it should be further enacted, that if any offender who shall be so ordered by any such court as aforesaid, to be banished or transported in manner aforesaid, shall be afterwards at large within any part of the United Kingdom, or any other part of his majesty's dominions, without some lawful cause, before the expiration of the term for which such offender shall have been so ordered to be banished or transported as aforesaid; every such offender being so at large as aforesaid, being thereof lawfully convicted, shall suffer death as in cases of felony without benefit of clergy.

II. That the punishment of transportation and of death are punishments applicable only to felonies, and offences so specific and certain in their nature, as to exclude the commission thereof through ignorance or inadvertence, and necessarily to include the evil intent in the felonious or illegal act. But that the offence of libel is not specific and certain, and is incapable of being rendered previously certain by any specific definition; and that libels may be, and frequently are, published by persons having no community of intention with the authors or composers thereof; and being, from the nature of their

business, necessarily unacquainted with the contents or probable effect of the same.

III. That questions of libel, both in law and fact, are determined by a jury on the prosecution thereof, and that the verdict of the jury upon a trial is the sole criterion of judgment, as to the legal or illegal nature and effect of a publication; and that such verdicts, depending upon individual opinion, are always uncertain and frequently contradictory, in so far, that the authors and composers and first publishers of political and other publications have, in some instances, been acquitted upon prosecutions for libel; and subsequent venders, no way concerned in the printing or first publishing thereof, have been convicted by different juries for the publication of the same libels, and punished upon such conviction by fine and imprisonment.

IV. That a verdict of acquittal, on a prosecution for libel, whereby the publication complained of is declared in the opinion of the jury to be innoxious, does not legitimate the continued sale thereof, but that the same defendant is subject to prosecution for each subsequent act of publication of the same work, and in doubtful cases, is liable to probable eventual conviction and punishment; and that a prosecution for libel, even in cases of acquittal, does therefore generally operate to restrain the continued circulation of the offensive work, and in some cases to suppress the same altogether.

V. That as general booksellers and publishers, we are more especially affected by the proposed act, and that the more extensive and respectable the trade carried on is, the more probable it becomes, that we may, innocently and with good intentions, fall under the censure and punishment of the proposed law.

VI. That instances are not wanting in which booksellers have been convicted, and have suffered punishment, for the sale of libellous works, by servants without their privity, and, it may be, even contrary to their command; and that as no circumspection can guard against the malice of an offended, or the negligence of a careless, servant, we shall be liable to incur the ultimate penalty of the proposed law, for acts of which we have no cognizance, and against which prudence would be unavailing.

VII. That from the nature of our trade, we are daily employed to execute orders for customers as intermediate hands, in the distribution of new works, of the contents and nature whereof we are unavoidably ignorant, and that for each copy of such works so distributed by us, we are now responsible upon an indictment or information, and are liable, notwithstanding the perfect integrity of our intentions, to punishment, as in case of a misdemeanour; and that if the proposed bill should pass into a law, we may in such cases become liable to transportation for seven years, and to the punishment of death in case of return from transportation.

VIII. That a very great number of historical, political, and religious works, are written and composed and published in London at stated periods, and that most of such works are of temporary and immediate public interest, and that such works issue from the press, and pass through the hands of several

different booksellers, and many thousands thereof are delivered to the public within a very few hours after their first publication, and that a previous perusal or consideration of such works, by such venders of the same as are not the original or first publishers of the same, is impracticable.

IX. That many standard works upon historical, philosophical and political subjects, which have now obtained a classical reputation, and are daily sold by respectable booksellers, under the licence of a long prescription; may be reasonably considered to be liable to question as libellous by analogy to more recent works which have been subjected to prosecution, and that such standard works therefore do not present any criterion for judgment as to the effect of new publications; but may themselves be the subject of future prosecution, and may subject the venders thereof to the punishments proposed by the said bill.

X. That the ignominy of a punishment which it is proposed to make common to authors, printers, booksellers and felons, while it operates to deter learned and respectable writers of the most virtuous principles from treating on political or religious subjects at all, will especially prevent them from engaging in the composition of Reviews, Magazines and other vehicles of periodical discussion, to the great and permanent detriment of learning; and will seriously injure the trade of booksellers and printers, in which they have large capitals embarked; especially in that extensive branch of it which embraces the most respectable periodical works in the country, and will tend to throw them into the hands of reckless and desperate men.

XI. That although we have the greatest confidence in the wisdom and integrity of the present judges of his majesty's courts of law; yet that the power to expatriate and transport for a crime not specific, but indefinite in its nature, which exposes ignorance and inadvertence, equally with intentional guilt, is of too extensive and dangerous a nature to be confided to any authority whatever, to be exercised at discretion; and that, in relation to a crime whose turpitude is heightened or diminished by the political aspect of the times, such a power, especially if rendered permanent, might become the engine of great injustice and oppression, against which no character however perfect would be a protection.

XII. That from the circumstances stated, our trade and means of living, if not totally destroyed by the intended bill, would be carried on under a state of hazard and insecurity, productive of constant mental inquietude, and destructive of the comfort of ourselves and our families.

XIII. That a petition be therefore presented to the House of Commons, praying that the same bill, so far as respects the punishment of transportation and death for vending such blasphemous or seditious libels as in the said bill are mentioned, may not pass into a law.

XIV. That the petition now read be adopted and signed.

JOS. BUTTERWORTH, *Chairman.*

ADDENDA.

> "FRANKLIN, *who struck with awe his country's foes,*
> *And great before a venal senate rose.—*
> *Artists, who in your humbler stations stand,*
> *Earning your bread by Labour's active hand,*
> *He left the lesson to your useful class,—*
> *Unheeded shall the great example pass?*"

No.—His great example has not passed unheeded; and since "the names that rose to court the rhymes" of Mr. M'Creery did not include those of BOWYER *and* NICHOLS, *I shall enjoy the honour of placing them in due order, in these Addenda, among the most distinguished members of the profession.*

BOWYER AND NICHOLS.

WILLIAM BOWYER, the first printer of that name, and one of the twenty printers allowed by the Court of Star Chamber, was the son of John Bowyer, citizen and stationer. He was born in 1663, and in his sixteenth year was bound apprentice to Mr. Miles Flesher. Immediately upon the expiration of his term, viz. 1686, he took up his freedom of the Company of Stationers, and commenced business in Little Britain. In 1699 he opened his printing-office in Dogwell-court, White-Friars; and in 1700 (his thirty-seventh year) he was admitted to the livery. He soon became eminent in his profession, which he practised with unremitting industry and unsullied reputation for thirteen years, when, in the night of Jan. 29-30, 1712, he experienced the calamity of seeing his house, furniture, stock, and materials, consumed by fire. His loss was estimated at upwards of five thousand pounds; but it was more than half replaced by the produce of a brief, the contributions of many noble and liberal friends, and a subscription of his own fraternity; "in grateful remembrance of which the elder Mr. Bowyer had several cuts engraved, representing a phœnix rising from the flames, with suitable mottos, which were used by him and his son as ornaments in some of the most capital books they printed. He had a small silver cup inscribed, 'The Gift of Mrs. Eleanor 'James to W. Bowyer, after his loss by fire, Jan. 30, 1712:' under which has since been written, 'Bequeathed, in 1777, by William Bowyer to the Com-'pany of Stationers, as a Memorial of their Munificence to his father after

BOWYER I.

'his loss by fire, Jan. 30, 1712-13.' This cup is now deposited amongst the Company's plate, and is occasionally used on days of public festivity."—*Nich. 18th Cent.*

His mother was the daughter of Thomas Dawks, a printer of some celebrity in his day, who, in his youth, from 1652 to 1657, had been employed, as a compositor, on the celebrated Polyglot Bible of Bishop Walton. She was born March 6, 1664-5; was first married to Mr. Benjamin Allport, of St. Botolph's, Bishopsgate, bookseller, and subsequently to Mr. Bowyer; she died in 1727. Mr. Bowyer survived her ten years, and died in 1737, aged 74.* He was succeeded by his son,

Mr. William Bowyer, the most learned and distinguished printer of modern times. This celebrated Greek scholar was born in Dogwell-court, in the extra-parochial precinct of White Friars, London, Dec. 19, 1699, and may be said to have been initiated from his infancy in the rudiments of his art, in which he so eminently excelled. In June, 1716, he was admitted a sizer of St. John's College, Cambridge,† where he continued, till June, 1722. Soon after leaving college he entered into the printing business with his father. The principal attention to the executive, or mechanical part of the business, devolving on the father, and the correcting of the proofs being almost exclusively the business of the son. One of the first works which came out under his correction was the edition of Selden's works, by Wilkins, in three volumes, folio. This was begun in 1722 and finished in 1726: and his great attention to it appeared in his drawing up an epitome of the piece, *De Synedris*, as he read the proof sheets. He married, Oct. 1728, his mother's niece, Miss Ann Prudom, daughter of Mr. Thomas Prudom, citizen and fishmonger, who had been left, a few years before, by her father's will, under the guardianship of the elder Bowyer. By her he acquired some freehold farms in Yorkshire, and one at Navestock, in Essex. She died in 1731, when pregnant with a third son. Of the two former sons, one died an infant, and the other survived his father.‡ Mr. Bowyer married a second wife, Mrs. Elizabeth Bell, in

* Mr. Bowyer introduced to the profession a very worthy member in the late Mr. Griffith Jones, who, having served his apprenticeship to Mr. Bowyer, established himself in an office of his own, which he subsequently relinquished, and, with his brother, Mr. Giles Jones, in conjunction with Mr. John Newbery, commenced the publication of those numerous and popular little books written

" . . . . . to rear the tender thought,
To teach the young idea how to shoot,"

which instructed and amused the infantile age of our fathers, and which have been continued ever since in various forms with universal benefit and approbation. The Lilliputian histories of Goody Two Shoes, Giles Gingerbread, Tommy Trip, &c. are remarkable proofs of the benevolent minds of the original projectors of this mode of instruction, and respectable instances of the accommodation of superior talents to the embryo intellects of infancy. He was many years editor of the London Chronicle, the Daily Advertiser, and the Public Ledger. He contributed also to the Literary Magazine with Johnson, and to the British Magazine with Smollett and Goldsmith. He was born in 1712, and died in 1786.

† He commenced author in 1719 by writing an epistle in Latin.

‡ In Mr. Thomas Bowyer, who was the second, but only surviving son, an affectionate father's fondest hopes were centred; and to him Mr. Bowyer looked forward as to the heir of his fortune, and successor to the credit which he had obtained as a learned printer. With this view, after a grammatical education at Merchant Taylors' school, the young man was initiated in the profession under the immediate tuition of a Mr. Emenson, who was a relation of Mr. Bowyer, and afterwards, for some time, his partner. Unfortunately young Bowyer conceived a dislike to the business, which was not lessened by the reproofs occasionally received from his father, and which was again heightened by the mortification of seeing a son of Mr. Emenson (to whom the second Mrs. Bowyer had been godmother, and who was, at the same

1747.* She was originally his housekeeper; but in that situation was well known to, and highly respected by, his literary friends. She was a very extraordinary woman, and after her marriage she applied herself so closely to the advancement of her husband's business, that she, by her intense application to learning, arrived at last to a degree of capacity equal to the task of reading the proofs of the most learned works done in the office; and it is but justice to observe here, that her mental acquirements were only surpassed by her modesty. She died before her husband.

In 1729, through the friendship of the Speaker, Onslow, Mr. Bowyer was appointed printer of the Votes of the House of Commons, an office which he held through three successive Speakers, and for a space of nearly fifty years. In 1736 he was appointed printer to the Society of Antiquaries, and elected a member. In 1766† he engaged in partnership with Mr. Nichols, who had been trained by him to the profession. This enabled Mr. Bowyer, who was growing an invalid, to withdraw, in some degree, from too close an application; and did also no inconsiderable service to the public by bringing forward a gentleman who, from his zeal for the cause of letters, and his abilities to promote it, proved a very fit successor to his learned friend and partner. Mr. Bowyer died November 18, 1777, having nearly completed his seventy-eighth year. For the last ten years of his life he was much afflicted with the palsy and stone.

Mr. Bowyer certainly stood unrivalled, for more than half a century, as a learned printer, of which his own publications are an incontestible proof; and to his literary and professional abilities he added an excellent moral character. He was a man of the strictest probity, and also of the greatest liberality, assisting every species of distress. Many minute particulars of him that do not come within the limits of this sketch, may be seen in the Anecdotes of his Life, published by Mr. Nichols. To the journeymen of his profession he left by will some valuable bequests for the reward of merit,

period, an apprentice) on many occasions brought forward as a contrast for diligence and ability. Hence little jealousies and bickerings arose, which led to serious disagreements, and young Bowyer determined to relinquish the pursuit of business entirely; fixing his inclination on the church, he was ordained by Bishop Hoadly, and for some time officiated as a curate at Hillingdon, in Middlesex. But here an unsettled disposition permitted him not long to remain. He exchanged the clerical for the military garb; and that again for the sombre habiliments of a quaker, and became a resident at a village midway between Durham and Darlington, where he chose to drop his surname, and be known only as *Mr. Thomas*. This circumstance induced the next of kin to his mother to dispute his legitimacy, and claim the Yorkshire freeholds under an entail in his grandfather Prudom's will. After much trouble, occasioned by proceedings at law, he was established in the possession of his freeholds, and passed the short remainder of his life principally in his old retreat, near Darlington. The testamentary arrangements of his father having secured to him a comfortable maintenance, the son of Mr. Bowyer preferred the retirement of a country life, to which he had been long accustomed. He died Dec. 27, 1783, leaving his freehold estates and the greater part of his property to Mr. Thomas Newburn, apothecary, at Durham, who was a distant kinsman.—*Nich.* iii. 275, 276.

* In one of his letters, June 28, 1748, Mr. Bowyer says, "I have ventured on matrimony again, but without any view to children; more with a desire to have a nurse than to make one. We have been married near a twelve-month, and have a fair title to the Dunmow bacon. You will naturally want to know if I have married a fortune. Believe me I am too much of a philosopher for that; I have married a good woman who had lived with me fourteen years; a reasonable time of probation; in whom I doubt not but I shall meet with every comfort."

† The following year, 1767, the office was removed from White Friars to Red-Lion Passage, Fleet Street, where he styled himself "ARCHITECTUS VERBORUM." Over the door of the new office he placed a bust of Cicero.

BOWYER II.

particularly to compositors understanding the Greek language. The trust is for ever vested in the Stationers' Company.—See p. 279.

Upon his worthy partner and friend, Mr. JOHN NICHOLS, has the mantle of his predecessor fallen, who by his indefatigable industry and splendid talents, has well upheld the character of the typographic profession first gained for it, in this country, by the Bowyers. Sorry am I, indeed, to add, that he has also been inheritor of the same calamity which the first Bowyer experienced. On the evening of February 8, 1808, a dreadful fire reduced at once to ashes the house, the office, the materials, with the valuable stock of learned and expensive works, which had cost the labour of nearly a century (ninety-six years from the time of Mr. Bowyer's misfortune) to accumulate. Still his mind was not broken. "He had the fortitude," as Mr. Dibdin says, "by his resignation as a Christian, and by all the consolation arising from the weight of his public character as a member of society," to bear up against the affliction of beholding the wreck of labours long pursued, with the manly resolve of doing all in human power to restore the loss. The buildings, phœnix-like, sprang up again from the ashes; and, supported by his son, who bears the name of BOWYER, again began his labours. The premises having been finished in less than two years, the business proceeded upon a large scale. It having been judged necessary to have the Votes of the House of Commons printed in an office near to the House, and their business having been for some time divided for that purpose, Messrs. Nichols and Son removed their whole concern to Parliament-street, Westminster, and demised the Red-Lion-Court premises to the learned typographer Mr. A. J. Valpy, previously of Tooke's-court, Chancery-lane.*

But I should be inexcusable were I content with so brief a notice of him whom Dibdin styles "the living father of the puncheon and matrix;" or omit the opportunity of holding up to my son, and to the son and apprentice of every brother of the profession, an example so worthy to be emulated.

"The labours," says Dibdin, (iii. 402) "of Mr. Nichols have been briefly and unostentatiously made known to the public through the medium of the sixth volume of his 'Literary Anecdotes of the Eighteenth Century.' He was born at Islington, Feb. 2, 1744-5. In 1757, before he was quite thirteen he was placed under the care of Mr. Bowyer, and, whilst an apprentice, was entrusted with a considerable share of the management of the printing-office.† In 1778 he became associated in the management of the Gentleman's Magazine. In 1781 he was elected an honorary member of the Society of Antiquaries at Edinburgh; and, in 1785, of that of Perth. In 1784 he was elected into the Common Council for the Ward of Farringdon-without. In 1804 he

* Mr. Valpy, now he is on classic ground, will perhaps think of the advice given by Mr. Dibdin, and heartily reiterated by his (*not* learned) brother typographer, to "annul and expunge 'henceforth and for 'ever,' that hieroglyphical, semi-astrological, but most barbarous, gallows-seeming *device*, wherewith he ornamenteth the frontispieces of his books!" *Decam.* ii, 414.

† "When I was bound to him my father received from Mr. Bowyer a promissory note to *return* half the apprentice-fee at the expiration of the seven years, *on condition* that I behaved suitable to his expectation. This sum he very honourably paid me in February, 1766." *J. N.*

attained what was, perhaps, the summit of his ambition, in being elected master of the Stationers' Company. In December, 1811, he bade a final adieu to civic honours, intending also to withdraw from a business in which he had been for upwards of half a century assiduously engaged; and hoping (DEO VOLENTE) to pass the evening of his life in the calm enjoyment of domestic tranquillity. The son who will so worthily succeed to such a father's fame was the offspring of a second marriage. His mother's name was MARTHA, daughter of Mr. William Green, of Hinckley: she died in 1788. He was born July 15, 1779; and in addition to the christian name of his father, bears that of his great predecessor, BOWYER."

HUGHS : HANSARD. — STRAHAN : SPOTTISWOODE.

Some notice, however brief, of the two most eminent contemporary Houses of the eighteenth century will, it is presumed, be acceptable to all my readers, as tending to impress upon the mind of the young typographer, that in his profession, as well as in all others, talent, diligence, and probity will raise men from the humblest rank to that of affluence and honour.

Mr. JOHN HUGHS was born at Thame, Oxfordshire, in 1703. His father was a dissenting clergyman. He received a liberal education at Eton College, and served a regular apprenticeship to a stationer and printer in London. He first entered into business about the year 1730, in Holborn, near the Green Gate, and removed from thence to a house in Whetstone Park, near Great Turnstile, facing the east side of Lincoln's-inn Fields, and ranked for many years very high in his profession. From his press issued almost the whole of the numerous and valuable publications of the Dodsleys. In 1740, Mr. Hughs incurred the displeasure of the House of Commons, by having printed "Considerations on the Embargo on Provisions of Victual." The usual proceedings took place—he was ordered to the bar of the honourable House—declared guilty of "a breach of privilege"—committed to the custody of the serjeant at arms—reprimanded on his knees—and discharged.

About the year 1763, he obtained, through the interest of Lord North, who had been his school-fellow at Eton, the appointment as printer of the Parliamentary Papers and Journals of the House of Commons; by him was thus laid the foundation of a business since brought to a high degree of prosperity. He continued to reside in the house before mentioned, near Great Turnstile; the office extending backwards in the rear of the houses in Turnstile, and forming one side of Titchborne Court.

Mr. John Hughs married a Miss Dampier, whose brother, Dr. Dampier, was successively Dean of Durham, Bishop of Rochester, and Bishop of Ely. His half-brother was the late sir Henry Dampier, knight, one of the barons of the Exchequer; who was esteemed an admirable scholar, and stood, perhaps, unrivalled as an ecclesiastical lawyer.

NICHOLS

After a life of singular industry, integrity, and benevolence, Mr. Hughs died on the 30th of September, 1771, at the age of sixty-eight; leaving a widow with manners as placid as his own, who survived him many years. He left also a son, an only child, named Henry, who, after following the laudable example of his father, retired in 1799 from the cares of business, possessed of a fortune very honorably acquired, and at a period of life when he was capable of enjoying the benefits of it. But this, nevertheless, was not permitted him many years. He died at Brighton, September 5, 1810, aged 62, leaving a widow and three daughters. As a scholar he was well esteemed, and as a man worthy and unassuming. He married Miss Eliza Strong, second daughter of an eminent solicitor in Great Ormond Street. For some years, and until after the death of his mother, he resided in Bedford Row, after which he removed to King's Road; and from thence to Harley Street, which was his town residence until the time of his death.

To make proper mention of his successor, as far as from circumstances I am allowed to do, will cause me to retrograde a few years in my history.

The business was, for many years, under the management of a worthy man of exemplary diligence and attention, Mr. William Day, who resided, first in the old dwelling house in Whetstone Park, and subsequently in a house in Great Turnstile, which was made to communicate with the office; and the former was taken for the business. The increase of parliamentary printing rendering more assistance necessary, the active attention to business of Mr. Luke Hansard, pointed him out as the most capable of the arduous office of manager of the operative department.

He was born at Norwich, in 1748, and served his apprenticeship to Mr. Stephen White, a man of much versatility of talent and ingenuity, not confined entirely to his own profession. Upon the expiration of his term, Mr. Hansard came to London, and obtained an engagement as a compositor in the office of Mr. Hughs, until the period above-mentioned, when he became the acting manager, Mr. Day attending chiefly to the reading department. After the death of Mr. Day the whole management devolved upon Mr. Hansard, who, after some years' exertion, as great, perhaps, as ever was witnessed, certainly never exceeded by any one, in making the interest of his employer the first and sole object, became, in 1799, a partner in the concern; and, by a subsequent arrangement in 1800, he succeeded as the entire proprietor of a business* to which he has, with unremitted exertion, devoted almost forty years of his life: and has rendered it the first in the world for that promptitude and despatch so essential to the interests of the legislature and the nation.

The increasing business of the House of Commons, and vast accumulation of stock requisite for executing it, requiring more room, a large and commodious building suitable to the purpose was erected in Parker Street, Queen Street, Lincoln's Inn Fields. The whole business is conducted under

* "That business has since devolved into the hands of perhaps the only printer living, who unites in one person the ability of superintending such extensive duties, and strength of mind and body sufficient to undergo the fatigue of personal attendance." *Nich.* 18 Ct. ii. 414.

the firm of Luke Hansard and Sons, Mr. Hansard giving the old house, which, for cleanliness, convenience, and above all, immensity of stock of materials, is, as a printing establishment, unequalled, the greater share of his personal attention. Long may he live endued with strength both of body and mind to enjoy the delight (and he seeks no other pleasure) of his incessant drive of business. To this he devotes about eighteen out of the twenty-four hours of every day of his life.

He has a family of sons and grandsons (nor any lack of the other sex), who promise fair to rival in numbers engaged in the typographic art, the Elzevirs of the seventeenth century;* and to insure, beyond any ordinary probability of failure, a long succession of the name of HANSARD in a profession, in which LUKE HANSARD has, by his own talents and industry, raised a fame above all his compeers.

His eldest son migrated to Peterborough Court, in the City of London, in the year 1805, and upon the expiration of his lease in 1823, moved to a more central part of the city, and more convenient to those connexions he had been most anxious to form, in order to avoid any possible collision with the interest of his father and younger brothers. Having purchased the freehold of a house in Pater-noster Row,† he fitted it up for business according to his idea and experience of what a printing office ought to be, as far as the scite of ground allowed, and named it,

The Pater-noster-Row Press.

The late Mr. WILLIAM STRAHAN was born at Edinburgh, in April, 1715. His father had a small appointment in the Customs there. After receiving a Grammar-school education, his son was apprenticed to a printer, and by sobriety and diligence recommended himself, in early life, to his employers. He came to London, and, while young, married a sister of Mr. James Elphinstone, a school-master of much reputation. His emoluments were, for sometime, very scanty, during which time he lived within, rather than beyond his income; and continued uniformly sober, diligent, and attentive to business. This conduct enabled him, after he had embarked on his own account, and the first difficulties were overcome, to get forward with rapid success, and to become one of the most flourishing printers in the metropolis. When Mr. Charles Eyre, in 1769, took possession of the reversion of the patent of king's printer, he appointed Mr. Strahan as his printer, who in 1770 purchased a share of the patent.‡ His active mind led him to join in the

* Of this family, see p. 302.

† It is rather remarkable that Stower printed his book in this house, having hired the upper part of Messrs. Cradock and Joy; and that this work should be delayed till it chanced to be printed in the same house so many years afterwards.

‡ See p. 182.

warfare of politics. In 1775, he was returned to parliament for Malmesbury, in Wiltshire, with a very illustrious colleague, the honourable Charles James Fox; and in the succeeding parliament (1780), he was member for Wootton-Bassett. In his political connections he was constant to the friends to whom he had been first attached; was a steady supporter of that party who went out of administration in the Spring of 1784; and lost his seat by the dissolution which then followed. His declining health prevented a desire of renewing the arduous duties of a conscientious representative, and he died July 9, 1785, aged 71. The celebrated Dr. Franklin was his fellow-workman in a printing-office in London, whose friendship and correspondence he continued to enjoy till his death.

He had three sons; the eldest, WILLIAM, followed the profession of his father for sometime on Snow Hill; but died in 1781: and his business was taken by Mr. Spilsbury;—GEORGE, D.D., late prebendary of Rochester, was upwards of 50 years vicar of St. Mary, Islington,; and ANDREW, who, in due time, succeeded his father.

Mr. A. STRAHAN is, as has already been shown, with George Eyre, Esq. and John Reeve, Esq., joint patentee as king's printer; he remaining sole patentee as law printer. He came into parliament for the borough of Wareham in November 1802. Some years ago Mr. Strahan admitted into a limited partnership Mr. William Preston, who had for many years been principal manager of the business, which continued till Mr. Preston's death. Mr. Strahan then brought his nephew,

Mr. A. SPOTTISWOODE, who had been early initiated into the profession, forward in the concern, and subsequently withdrawing his own name, except as relating to the patent of king's and law printer, this immense business is now very ably conducted by the two brothers, ANDREW and ROBERT SPOTTISWOODE.

ON TYPE-FOUNDING.

SECTION VIII.

*The Rev. Mr. Rowe Mores' "Dissertation upon English Typographical Founders and Founderies"—Early Printers Founders also—*CAXTON*—His Type; Fac-similes not like the Original—*WYNKYN DE WORDE*—*PYNSON*—*FAQUES*—*DAY*—Those that followed—Separation of Printing and Founding—Star-Chamber Decrees and Regulations for those Trades—Appointed Printers and Founders—Mr. Pitt's Precedent for intimate acquaintance with the Fraternity—Mr.* JOSEPH MOXON*—His Work on Type-cutting and Casting—University of Oxford Foundery; Bp. Fell's, Junius's, Grover's, Andrews's, James's, John James, Ilive's, CASLONS, I. II. III. IV.,* JACKSON*, Cotterell,* FRY*,* FIGGINS*,* THORNE*, Martin, and many others.—Scotland—*WILSON*,* MILLER*, &c. —Properties and Shapes of Types—Type Metal—Of Roman—Of Italic —Old Old English, New Old English, Modern, or Black—Names of Letter—Proportion to each other—Different sizes in England—Founts of Letter as with Letter-founders.*

IN the prefatory acknowledgments I have mentioned the Reverend Edward Rowe Mores,* and am now about to avail

* "The Reverend Edward Rowe Mores was a gentleman of considerable talents and education. [See Nichols's 18th Cent. 389-405.] In the latter part of his life (he had long turned his thoughts to the subject of early printing) he began to correct the useful publication of Mr. Ames. On the death of Mr. John James of Bartholomew Close (the last of the old race of letter-founders), in June 1772, Mr. Mores purchased all the curious part of that immense collection of punches, matrices, and types, which had been accumulating from the old foundries, from the days of Wynkyn de Worde to those of Mr. James. From these, a large fund of entertainment would probably have been given to the curious, if the life of Mr Mores had been prolonged. His intentions may be judged of from his valuable work; which, as no more than eighty copies were printed, will always be a typographical curiosity." Mr. Nichols bought the whole impression at the sale of Mr. Mores's curiosities; and after subjoining a small appendix gave it to the public. It has now become exceedingly scarce. I was, however, lucky

myself of his labours to give the English typographer some account of the early practitioners of that art, which he must in candour acknowledge to be entitled to take precedence even of his own. In making my extracts* I shall not follow Mr. Mores in his peculiarly whimsical abbreviations and punctuation: but the fund of general information, interspersed with anecdote and opinion, relative to every part of the type-founding and printing professions, is so interwoven with his "crabbed eccentricities,"† as scarcely to be separated in any considerable quotations. But his learning, humour, and preservation of facts, which, but for his attachment to a dry subject, would unquestionably have been lost, atone sufficiently for his pedantry and occasional ill-nature. His work, throughout, is calculated to afford amusement and information to every one interested in the study of typographic history. From several passages‡ it is evident that his dissertations were designed to have been prefixed to a posthumous specimen of the punches and matrices of "The foundry of Mr. John James, the last of the old English letter-founders." It was intended "to distinguish the foundries out of which Mr. James's was made up"—"to show the variety of matrices with which his foundry abounded"—"even of those which the great improvements made in the art of letter-cutting have rendered altogether useless in typography." As Mr. Mores says, these specimens would have been "found of critical use to an antiquary." They would have given an opportunity of contemplating some of the original punches of Wynkyn de Worde.

OF ENGLISH FOUNDERS AND FOUNDERIES.

"The history of English printers has been copiously handled by those who, with commendable zeal and diligence, have

enough to pick up a perfect copy, cheap, at the price of a guinea, at a late sale of Mr. Sotheby's, and so elegantly bound that some former possessor must have spent as much on the binding as I gave for the book.—*H.*

* In order to avoid repetition of references, it may be understood that all matter with marks of quotation are from his works, unless otherwise expressed.

† "The crabbed and eccentric Rowe Mores." *Dibdin.*

"Mores's valuable but quaintly written essay." *Horne.*

‡ See pp. 14, 67, 73, 74, 76.

delivered to us the typographical antiquities of the nation; but little or no notice has hitherto been taken of the FOUNDER, although he is a first and principal mover in this curious art."

The most probable reason for this silence seems to be, that, at the beginning, no distinction was made between the different operations of making the types, and of using them after they were made; but the whole exercise of the profession went under the general denomination of PRINTING; a term which included every process belonging to a printed book, from the punch to the binding—that the inventors of this art so considered and exercised it, is beyond dispute. The conjecture, then, is rational, that their immediate successors followed their example; and it is observable, that, neither in the acts, ordinances, nor injunctions, made from the 1st Rich. III to the year 1637, relative to printers and printed books; nor in the charter granted to the Company of Stationers, is any mention made, of the arts of letter-cutting and letter-founding, both which are seemingly therein comprehended under, *The science, art, craft, or mystery of printing*. Therefore, in the account which we are about to give of English founders and English founderies, we must necessarily mention a few of our first printers, that the progress of letter-making in England may be carried on with as little intermission as may be: and first,

Mr. CAXTON. "His letter was originally of the sort called *secretary;* and of this he had two founts. Afterwards he came nearer to the english face;* and had three founts of great primer; a rude one which he used in 1474; another, something better; and a third, cut about 1488, approaching more nearly to the english face; two founts of *english* or *pica*, the latest and best cut about 1482; one of *double pica*, good, which first appears in 1490; and one of *long primer*—at least, nearly agreeing with the bodies which have since been called by those names. They resemble the usual character of our manuscripts of that age, as those of Faust and Schoeffer, and others of the first printers resembled the character of theirs; all which were of the

* It is scarcely necessary to mention that in this part of the work the expressions "english type," "english face," &c., are not used in the sense now applied in typography, as designating the size of the body; but are confined to the *old english character*, now, for shortness, called *black*.

same lineage, and differed but little in the feature of their countenance."*

Mr. Dibdin assigns to Caxton five distinct founts; and gives, from Ames, fac-similes in copper-plate engravings, numbered 1 to 5. Those numbered 1, 2, 3, I take to have been nearly equal to our great primer—No. 4, to english—No. 5, a trifle less than great primer, gaining 1 in 18. In Mr. Dibdin's curious descriptions of the titles of the several volumes of Caxton's labours, he has generally added one of these numbers to designate the type in which the book is printed. The more bulky works seem to have been almost uniformly executed with his smaller type (No. 4). He had probably a larger fount of this than of any of the other kinds.

I must confess that my eye, as a printer, was by no means satisfied with these *plate-engraved* fac-similes. It is so absolutely impossible to render impressions taken by such directly contrary means as *copper-plate* printing and *type*-printing, exact likenesses of each other, that I was induced to seek for some originals to satisfy myself before I wrote upon the subject. I was favored by Mr. Evans of Pall-mall with the opportunity, during the preparation for the sale of the White Knight's library, of tracing from the Caxtons themselves, specimens of the type of *The Pylgrimage of the Sowle*,† 1483; and of the "Royal Booke," 1484. The former is the type No. 4; the latter, No. 5; the improved cut of No. 5, as compared with that of No. 4, is very evident.

O Glorious Jhesu. O mekest Jhesu. O moost
swettest Jhesu/I praye the/that I may haue trewe con-
fession/ contricion/ and satisfaction or I dye/And that I

When I remembre and take hede of the conuersacion of
vs that lyue in this wretched lyf. in which is no surete
ne stable abydyng. And also the contynuel telynes of euery

* Mores, p. 4.

† It is supposed by Mr. Dibdin that the work of Caxton here mentioned laid the foundation of John Bunyan's "Pilgrim's Progress." See *Typ. Antiq.* p. 153.

The lines of the former exhibit two sizes of type; the first line is probably Caxton's (Dibdin), No. 2; but as I have not seen the book which contains the type thus denoted, I cannot be positive; for, as I said before, comparison is next to useless between the plate-printing and type-printing.

I do not mean to question the fidelity of the artist in his particular line of art, by whom the plates thus alluded to were executed: but there is such a radical difference in the appearance of impressions produced from copper-plate engravings, and those done after the manner of letter-press, that, looking on the most skilful attempt ever made in this way, is of itself sufficient to decide, whether it is possible for *the plate* to be equally faithful with *the block-mode* of producing fac-similes of type, or surface-printing.

Mr. Horne gives specimens of Caxton's type in the way which is alone capable of truly representing it, namely, by engravings on wood: but these make the matter still worse, as they were copied from Ames's copper-plate specimens; and it was an effort of the artist to make his blocks, as near as art would permit, vie with the engravings from which he had traced, in evenness and sharpness of the lines. The printer, also, from having worked them in the best and clearest manner, has occasioned a still further deviation from that analogy which they are intended to bear with the originals.

It appears very plain to me that Ames and Horne, in their fac-similes of Caxton's printing, have taken, not his first, but his subsequently improved type. In the British Museum one, at least, of the books called Caxton's, certainly was a posthumous Caxton. The Boke named the Royall, was a re-print of Caxton by Wynkyn de Worde, in 1517: and I have no doubt but it was done by cast metal type, nor could I, by an examination of some patience, find in it the lines which form my specimen; and which, as said before, I copied from an undoubted original that belonged to the duke of Marlborough. The minute contractions, as y^{e}, y^{u}, &c., show the art of punch-cutting to have been materially improved in those years.

The Myrrour of the World, although of an earlier date (1480), is, I have no doubt, type.

Fayttes of Armes and Chyualrye, 1489, Caxton, is also type.

Knyght of the Tourr, 1483, Caxton, type.

Boetius, type.

All of these books exhibit press-work which for blackness of ink, and regularity of colour and impression throughout, is not excelled by the work of the present day.

WYNKYN DE WORDE made considerable advances in the art of letter-casting, and enriched his foundry with a variety of new types. His letter may be characterized as the *square English*, or *black-face*. The best of his founts were cut about the year 1496.

RICHARD PYNSON, as well as DE WORDE, was a foreigner; he was brought up under Mr. CAXTON, and naturalized. He was an excellent workman. His types are particularly known by several works printed by him in 1496 and 1499.

As excellent a workman, also, was another contemporary, WILLIAM FAQUES. "He used a new cut English letter, equalling" Mr. Mores says, "if not exceeding, in beauty any which our foundries at this day produce;" and the same observation may, in my opinion, be continued to the present day. "Once for all be it observed, that the favourite characters of the printers of these times were the larger bodies, and particularly Great Primer; here, therefore (1515), we dismiss an enumeration which may begin to seem tedious, and hasten to something which may be more amusing, adding only, that *Copland* the elder (who had been servant to *De Worde)*, and *Wyer*, and *Redman* (1527), had founts of Two-line Great Primer, the latter good and beautiful; that *Will. Rastel* used Italic in 1531; that *Berthelet* had a fount of English Roman with a face as thick as English, but pretty; and that *Redman* used a Secretary type in the edition of "Rastall's Grete abregement," printed in 1534; which secretary is the last secretary we remember, and which edition is an edition mentioned by none."

"JOHN DAY, Archbishop Parker's printer, is next to be mentioned; and we mention him with certainty as a founder, if not as a proof of the truth of the conjecture that our first printers cut their own letter, for in the preface to the edition of *Asser Menev.* which the archbp. to allure the English to the study of their mother-tongue, published in Saxon characters, in the year 1567, we are expressly told that the types for that edition were cut by Day, and that he was the first and only one who had cut such

types."—" And having arrived at this certainty, we shall mention no more of the English printers, as we are drawing near to the time when founding and printing were separated from each other; and the former was exercised as a trade by itself, and divided into the several branches of cutting, casting, and dressing, the workers in which several branches were indiscriminately called Letter-Founders, though few either did or could perform the whole themselves."—" In this place, according to order of time, falls in the mention of a decree of the Court of Starre Chamber, made 11 July, 1637, by which it is ordered,

" That there shall be four founders of letters for printing, and no more.

" That the archb. of Canterbury, or the bishop of London, with six other high commissioners, shall supply the places of those four as they shall become void.

" That no master-founder shall keep above two apprentices at one time.

" That all journeymen-founders be employed by the masters of the trade, and that idle journeymen be compelled to work upon pain of imprisonment, and such other punishment as the Court shall think fit.

" That no master-founder of letters shall employ any other person in any work belonging to the casting or founding of letters than freemen or apprentices to the trade, save only in pulling off the knots of metal hanging at the end of the letters when they are first cast, in which work every master-founder may employ one boy only, not bound to the trade."

" The four founders appointed by this (1637) decree to serve the whole kingdom were,

" John Grismand,

" Thomas Wright,

" Arthur Nicholas, and

" Alexander Fifield."

Mr. Mores gives the particulars of their labours *en masse,* under the title of the Polyglot Foundery, 1650 (p. 41).

" And this number of founders was judged to be sufficient for the whole kingdom, the same decree limiting the number of master-printers to twenty, as before it had been limited by a decree of the same court, made 23 June, 28 Eliz. (1585), and

framed by archb. Whitgift, to avoid the excessive number of them within the realm; and to repress the great enormities and abuses which they had committed to the disturbance of the Church and State.

"Formed upon the principles of that decree (Star-ch. 1637), ann. 14, Car. II, an act passed for regulating of printing, more burthensome to learning and more subversive of the liberty of the press than the decree itself; which, together with other burthens, occasioned the dissolution of the Court. By this act the number of master-founders was again restrained to four, and the number of master-printers to twenty (exclusively of the King's printers and the printers for the Universities) to be appointed by the archb. of Canterbury and the bishop of London; and no founder was to cast any letter for printing, no joiner to make any press, no smith to forge any iron-work for a press;* no person to bring from parts beyond the seas any letters founded or cast for printing; nor any person to buy any letters or any other materials belonging unto printing; without application to the master and wardens of the Company of Stationers.

"This was a probationary act for two years only, and 16 *ejusd. Car.* (1664) was continued until the end of the next session of parliament, and again until the end of the next session, and 17 *ejusd.* until the end of the first session of the next parliament; it was revived 1 *Jac.* II. (1685) to continue in force for seven years, and from thence to the end of the next session, when it expired in 1693, and we hear no more of it," till something very like its ghost arose in the Pitt and Castlereagh administrations, and produced the acts which have been so often referred to; two of which are expired, and which, let us hope that the temper of the people and the more enlightened or liberal policy of the present age will never give occasion for reviving on our statute-books.

Next in order to the Polyglot Founders, is

"The ingenious Mr. JOSEPH MOXON. He founded at London from 1659 to 1683. His business was that of a mathematical instrument maker, and in the year 1665 he was hydrographer to his majesty, K. Ch. II. and lived at the sign of Atlas, on

* I really did not know, until I had occasion to become thus acquainted with star-chamber proceedings, that the Act of 39 Geo. III, had such strong *precedent* in its favour. See *antè* p. 317.

Ludgate-hill, near Fleet-bridge; in 1668 he dwelt at the sign of Atlas, in Warwick-lane: the cause of his removal undoubtedly was the conflagration of 1666; but as Warwick-lane was destroyed in that conflagration as well as Ludgate-hill, we can only suppose that he dwelt in one of the temporary edifices there set up, till the principal street could be rebuilt, after which Mr. Moxon returned to the neighbourhood of his former habitation, and dwelt on the west side of Fleet-ditch.* He was elected a fellow of the Royal Society, 30 Nov. 1678; an admirable mechanic he was, and handicraft; and having been many years conversant in those trades in which the chief knowledge of all handy-works lies, in the year 1677 began to communicate to the public, in monthly publications, the knowledge he had attained. These publications he entitles '*Mechanic Exercises; or the Doctrine* '*of Handy Works;* all New Matter, not collected or translated from 'any others.' These exercises he continued to publish monthly, till Oates's plot obstructed, by taking off the minds 'of his 'few customers from buying them.' The first vol. treating of the smiths', joiners', carpenters', and turners' trades were then finished. In 1686 the work was resumed, and the second volume, which treats of the art of typography in its whole extent, was finished in 24 numbers, about the year 1686, beyond which trades Mr. Moxon went not."

In this work† we are informed "that" (notwithstanding the restraints just mentioned) "the number of founders and printers were grown very many, insomuch that, for the more easy management of typography, the operators had found it necessary to divide it into the several trades of the master-printer, the letter-cutter, the letter-caster, the letter-dresser, the compositor, the corrector, the press-man, the ink-maker; besides several other trades which they take into their assistance, as the smith, the joiner, &c."—"But, as to letter-cutting, which is our immediate subject," he says, "that it was a handy-work at that time kept so concealed among the artificers of it, that he could not learn any one had taught it any other; but every one that had used it learnt it of his own genuine inclination; therefore, though he

* He was succeeded "as well in skilfulness and curiosity as in office," by Mr. George Adams.

† Namely, Moxon, as quoted by Mr. Mores.

could not describe the general practice of workmen, yet the rules he followed he shows; and had as good an opinion of those rules as those had that were shyest of discovering theirs; for, indeed, by some work done, a judicious eye might doubt whether they went by any rule at all, though geometric rules, in no practice whatever, ought to be more nicely or exactly observed than in this."

"Mr. Moxon, by nice and accurate divisions, adjusted the size, situation, and form of the several parts and members of letter, and the proportion which every part bore to the whole,* by the exact construction of his standing gages and gages for the counter-punches of angulars—a new thing to the letter-cutters of his time, who worked by the eye and hand only; and by repeated stampings of the counter-punch in lead, tried how it pleased them, and never made two of the same standard.† By laying down for once the angles required for the slope of the italic; scalping down the shoulderings of the infra-foot-line swashes, which others only filed away as far as they could, leaving the rest, after the letter should be cast, to the kerning-knife; and, in short, by applying in every instance geometry and mathematical and mechanical skill to the art of letter-cutting,‡ Moxon was the first of English letter-cutters who reduced to rule the art which before him had been practised but by guess, and left to succeeding artists examples that they might follow his practice."

"As Mr. Moxon has given us the certain state of printing in his time, we shall take occasion to observe, that the bodies most of use in England when he wrote were great-canon, two-line english, double-pica, great-primer, english, pica, long-primer, brevier, small-pica, nonpareil, and pearl. The Dutch, he says, had several other bodies, but he thought them not worth naming."

* He published "Regulæ trium ordinum literarum typographicarum," in which he lays down mathematical rules for the formation of roman, italic, and black. His science does not seem to have led him to any improvement in shape, for the characters which he formed are the ugly Elzevirs of the seventeenth century.

† I need not say to any observer of typography how closely this censure will apply to the letter-cutters of the present day. See upon this subject, p. 116.

‡ Fournier, in one of his dissertations, denies, and I think with reason, the general applicability of mathematics to punch-cutting.

"PETER WALPERGEN, at Oxford, in 1683; of whom we can say nothing more than that he is sometimes called Walperger; and by his name seems to have been a foreigner."

"In chronological order must now be mentioned a foundry at the University of Oxford, the matrices of which were severally given to the University by bishop Fell and Mr. Junius." Mr. Mores gives (p. 44, 45) an account under the heads of BISHOP FELL'S Foundry, 1667; MR. JUNIUS'S Foundry, 1677. [See also *post*, 344, 345.]

"—— NICHOLS, in 1690.

"JOHN GROVER.

"THOMAS GROVER, his son; both whom Ames, who is exceedingly incorrect throughout his work, calls Glover. Their founding-house was in Angel-alley, in Aldersgate-street." Their foundry is particularized by Mr. Mores in p. 46. "Mr. Grover's foundry became, at his decease, the joint property of his daughters, and was appraised and valued, in 1728, by Mr. James and Mr. Caslon. Mr. Caslon contracted for the purchase of it; but the daughters, thinking the foundry undervalued, refused to join in the sale; so it remained locked up at the house of Mr. Nutt (who had married one of the daughters) for thirty years; Mr. Nutt, in the mean time, casting from the matrices for the use of his own printing-house. At length, all the daughters of Mr. Grover being dead, the property centred in Mr. Nutt, of whom it was purchased by Mr. John James, in 1758. Part of this foundry is said to have belonged to that of Wynkyn de Worde."

"Mr. ——— GORING.

Mr. ROBERT ANDREWS; his founding-house was in Charterhouse-street; and he was living in the year 1724. His foundry, including that of Mr. Moxon, which constituted the greater part of it, is enumerated by Mr. Mores. Even from these copious extracts the reader will be able to gather but a very imperfect idea of the vast labour and minute attention which Mr. Mores paid to his favorite subject. Besides the notices of founders themselves, he particularizes the kinds of type cast at their several foundries in a manner of which the following may be

taken as a curious specimen of the minute precision of this author, given after his own manner.—See pp. 48, 49.

"Mr. Moxon's Foundry.

"It has been before observed that Mr. Moxon's foundry makes part of Mr. Robert Andrews's foundry; we believe, the most considerable part: but as they cannot, without great trouble, be separated, we are content that Mr. Moxon's shall be included in Mr. Andrews's.

"The Foundry of Mr. Robert Andrews.

ORIENTALS.

Hebr. Bibl. Two-l. Eng. 32. doub. pic. 68. gr. pr. 35. Eng. (the common Germ. face) 47. another, Eng. 73. pica 65. long pr. 35. brev. 35. sm. pic. (old) 42. another, 77. another, 73. nonp. 35. Rabb. Hebræo-Germ. Eng. 30. Rashi, pic. 29. long-pr. 30. brev. 29. nonp. 29. large-f. points 42. accents 27. sm.-faced points 28.

Samar. (Leusdenian) 21.

Syr. gr. pr. 47. points 13.

Arab. gr. pr. 104. Eng. 62.

MERIDIONAL.

Æthiop. gr. pr. 212.

OCCIDENTALS.

Greek, Eng. long-pr. brev. (these three were purchased by Mr. Thomas James, ten years before the sale of the foundry) long-pr. 457. brev. 331. nonp. 329.

Rom. and Ital. (regulars) 2 l. Eng. full f. cap. 31. 2 l. Eng. 147. It. 108. doub. pic. large f. R. 122. small f. 115. It. 107. doub. pic. R. numb. II. 118. It. 66. another 126. gr. pr. R. numb. I. 114. It. 102. numb. II. R. 110. It. 66. Eng. R. and It. Eng. R. numb. II. 92. numb. III. 96. Eng. R. low.-c. 32. pic. R. 117. pic. R. low.-c. 27. pic. R. and It. long-f. ... long-pr. R. 84. It. 80. long. pr. R. lower-c. 42. another, 38. long-pr. It. cap. and doub. 45. brev. R. lower-c. 57. another, 57. brev. It. ... (title letters and irregulars) 4 l. pic. full-f. cap. 30. canon R. accents 27. can. It. 74. 2 l. doub. pic. R. 127. 2 l. gr. pr. full-f. cap. 31. 2 l. pic. full-f. cap. 31. 2 l. pic. R. lean-f. 58. parag. R. 122. It. 100. sm. pic. R. 76. It. 82. another It. 98. another, 80. R. and It. ... , bourgeoise It. 72. nonp. R. 80. pearl R. 2 sets.

SEPTENTRIONALS.

Anglo-Saxon, pic. 16. another 21.

Anglo-Norm. gr. pr. cap. 24.

English, gr. pr. with law 116. Eng. with law 106. pic. with law 125. pic. sm. f. 71. long-pr. 78. brev. with law 118. sm. pic. with law 120. another sm. pic. 58. nonp. 43.

Secretar. gr. pr. cap. 15.

Hibern. pic. 60.

B. Wilkins's Real Character, Eng. 160.

Mr. Adams's symbols, 20.

Mr. Moxon's correcting marks, Eng. 16.

Mathematical characters. Eng. and sm. pic. 42.

Astronom. and Astrolog. 31.

Music, 21 gr. pr. 54. paragon square-headed 44. large old sq.-headed 61. sundry bodies of old square-headed 155.

In this manner are particularized the foundries of

The Polyglott . .	1650	Mr. Thomas James (his original).	
Bishop Fell . . .	1667	Mr. W. Caslon.	
Mr. Junius . . .	1677	Mr. Ilive . . .	1734
Mr. Moxon		A Foundry, anonymous.	
Mr. Grover . . .	1700	Mr. John James . .	1767
Mr. Thomas Grover		Mr. Cottrell.	
Mr. R. Andrews . .	1706	Mr. Jackson . .	1773
Mr. T. Andrews		Mr. Moor . . .	1770
Mr. Head.			
Mr. R. Mitchell.			

All which may be contracted into the six establishments that follow, viz. bp. Fell's and Mr. Junius's, which compose the Oxford foundry—Mr. James's, which comprises all the rest, except the modern foundries of Mr. Caslon, Mr. Cottrell, Mr. Jackson, and Mr. Moor.

Mr. Mores then gives a synopsis (p. 89), under the heads in the preceding list, of Mr. Andrews's foundry, in order to draw into one point of view an account of the several matrices at that time in England, confining himself to the learned and less common sorts of types, which, although curious in itself, would be of little general use to printers in our days, when every letter-founder is anxious to present his friends, and those whom he is desirous to elect as such, with a specimen affording the most advantageous display of every thing connected with his foundry,*

* The University of Oxford, which, as said before, is in possession of some very valuable unique materials of the ancient foundries, viz. Bp. Fell's and

set off to the best advantage by printing on drawing paper, and by choice press-work. However, in order to imitate, as much as may be useful, the information given by Mr. Mores, I shall insert at the end of this section a synopsis of all the *matrices* in the several English letter-foundries for languages requiring peculiar characters.

"Mr. SILVESTER ANDREWS, son of Mr. Robert Andrews, mentioned in p. 342, founded at Oxford. Mr. Thomas James purchased both their foundries in 1733.

"Mr. SKINNER.

"Mr. —— HEAD's founding-house was in St. Bartholomew's-close. Whose the foundry was originally, we know not; but

"Mr. ROBERT MITCHELL, who had been servant to Mr. Grover, succeeded to it. He removed afterwards into Jewin-street; and lived afterwards over Cripplegate; and afterwards in Paul's-alley, between Aldersgate-street and Redcross-street. His foundry was purchased, in 1739, by the late Mr. Caslon and Mr. John James, and divided between them.

"Mr. THOMAS JAMES, son of the Rev. John James, Vicar of Basingstoke, served his apprenticeship with Mr. Robert Andrews. He entered into business for himself in the year 1710; and his foundry was begun with a set of matrices which he purchased that year in Holland, to which country he went for that purpose." The account of his expedition, as given by Mores, p. 51, &c. is entertaining: "Mr. James, after his return from Holland, had his first founding-house in Aldermanbury; from thence he removed to Town-ditch; in both which places his business was carried on upon upper floors. He at length removed to the foundry in St. Bartholomew's-close, where he continued till the time of his death, in 1738, accelerated by an unlucky attachment to a method of printing long since rejected, and at variance with the improvements of latter times." The method alluded to was neither more nor less than stereotyping—of which see hereafter. "This founding-house is an edifice disjointed from the dwelling-

Mr. Junius's, published in the years 1706 and 1770, specimens which are now to be found only in the collections of the curious, but which Mr. Rowe Mores, p. 82, says are "no credit to that learned body," and "not so accurate as might have been expected from an *archetypographus* and the *curators* of the *Sheldonian*."

house, and seems to have been built for Mr. James's own purpose. The dwelling-house is an irregular rambling place, formerly in the occupation of Mr. Roycroft; afterwards in that of Mr. Howndeslow; afterwards in that of Mr. S. Palmer, author of the General History of Printing; and lastly, in that of the two Mr. James's; and was part of the priory of St. Bartholomew: and in this house wrought formerly, as a journeyman, with Mr. Palmer, a gentleman, well known since in the philosophical world, Dr. Benj. Franklyn, of Philadelphia."

The WESTONS, mentioned by Ames, are supposed by Mores to be the WETSTEINS of Amsterdam. DUMMERS and JALLESON were both foreigners, and of short duration here. GEORGE ANDERTON attempted letter-founding at Birmingham. MR. BAINE published a small specimen in London, but retired into Scotland. FENWICK, RICHARDS, and M'PHIAL were of still less note; and, with four or five others mentioned by Mr. Mores, were, as he humourously calls them, *nullibiquarians*.

Mr. JACOB ILIVE, 1730, was a printer, and the son of a printer; but he applied himself to letter-cutting, and carried on a foundry and printing-house together.* In the year 1734 he lived in Aldersgate-street. His foundry was purchased, in 1740, by

Mr. JOHN JAMES. He succeeded his father in 1736, and died in 1772. His foundry consisted of the united foundries of

"Rolij, the German:

"Mr. Grover, the father:

"Mr. Thomas Grover, the son: among whose stock were the materials of Wynkyn de Worde:

"Mr. Moxon:

"Mr. Robert Andrews, whose foundry included Mr. Moxon's:

"Mr. Sylvester Andrews, his son:

"Mr. Head:

"Mr. Robert Mitchell:

"Mr. Jacob Ilive:

"and of a considerable collection besides, of whose former owners

* He was a character of much singularity, and made pretensions to learned authorship, the secret of which is most quaintly related by Rowe Mores, p. 65, concluding "that he was an expeditious compositor, though he worked in a night-gown, and swept his case *to pye* with the sleeves: he knew the letters by the touch."—See more of him *antè* p. 274, 5.

we can say nothing: the stock of many artists, and the labour of many years: a multifarious collection, and such as never before was, nor hardly ever will again be, in the possession of a single person."

It should be clearly understood that at the time Mr. Mores wrote this, "he was actually possessed of all the curious parts of the collection, which, after an accumulation of nearly three centuries, had centred in the late Mr. John James; a mass, apparently of rubbish; but in which, Mr. M. says, 'virtû was gratified by some original punches of *Wynkyn de Worde.*'"*

"A desire to preserve the memory of this foundry, the most ancient in the kingdom, and which may now be dispersed, has been the cause of this little history;" for which desire ought not we sons of the press *to preserve, everlastingly, the memory* of ROWE MORES?

The publications of Mr. Joseph Moxon have been already noticed as works of merit; and his authority as a theorist and instructor in the art of letter-founding, has commanded respect to the present day. His typographical publications may yield in extent and practical value to those of Fournier, but it should be remembered that the pursuits of Moxon were those of general science, while Fournier was, by birth, education, and profession, a letter-founder.†

Of many of the rest no additional information can now be recovered. Their matrices have enriched the copper currency, or have been sunk in the old stores of Messrs. Caslon and Livermore's foundry. At the commencement of the 18th century the native talent of the founders was so little prized by the printers of the metropolis, that they were in the habit of importing founts from Holland, where types much superior were manufactured. The glorious works of English literature which immortalized the reign of queen Anne were originally presented to the public

* Mr. Nichols, in his notes on Mores.—The book is not complete without an appendix of eight pages, written by Mr. Nichols, the printer.

† Peter Simon Fournier, born 1712. His letters not only embellish the typographical art, but his genius illustrated and enlarged it. He published, in 1737, a table of proportions to be observed between letters, in order to determine their height and relations to each other.—See his Manuel Typographique, 2 vols. 8vo.

through the medium of Dutch types. When we consider the great antiquity of coinage, and of the use of seals, and the comparatively modern date of the invention of printing, no slowness in the progress of art, or in perceiving the applicability of principles, can excite surprise; and the printers of the present day might still have been driven to the inconvenience of importation had not a genius, in the person of William Caslon, arisen to rescue his country from the disgrace of typographical inferiority.

Mr. William Caslon, who is styled by Rowe Mores "the Coryphœus of letter-founders," was born in that part of the town of Hales Owen, which is situated in Shropshire. It was by mere chance that he was led to take up the gauntlet, and avert from England the reproach of a dependance on foreign genius in this grand arena of human skill. It may be both amusing and instructive to read the rise and progress of his professional life. He served a regular apprenticeship to an engraver on gun-locks and barrels, and after the expiration of his term followed his trade in Vine-street, near the Minories. In every branch of his art his ability was conspicuous, but his early reputation arose chiefly from the dexterity and genius he evinced in inventing and engraving ornamental devices on the barrels of fire-arms. He did not, however, confine his ingenuity to that particular employment to which he had been brought up, but was occasionally occupied in making tools for bookbinders and for chasers of silver plate. While he was thus engaged some of his book-binding punches were noticed for their neatness and accuracy by Mr. Watts, a printer of eminence, who conjectured correctly that he was capable of remedying the defects of the existing foundries, and who, by engaging to support him, and introducing him to the leading typographers of the day, induced him to undertake a new one.

Speaking of Caslon Mr. Nichols says, in his Literary Anecdotes, "In 1720, the Society for promoting Christian Knowledge deemed it expedient to print, for the use of the eastern churches, the New Testament and Psalter in the Arabic language. Mr. Caslon was fixed upon to cut the fount, in his specimens of which he distinguished it by the name of "English Arabic." After he had finished the letters of this fount, he cut the letters of his own name in pica roman, and placed them at the bottom of one of the

CASLON I.

Arabic specimens. The name being seen by Mr. Palmer, he advised our artist to cut the whole fount of pica. This was accordingly done, and the performance exceeded the letter of the other founders of the time. But Mr. Palmer, whose circumstances required credit with those whose business would have been hurt by Mr. Caslon's superior execution, repented of the advice he had given him, and endeavoured to discourage him from any further progress. Mr. Caslon, being justly disgusted at such treatment, applied to Mr. Bowyer, under whose inspection he cut, in 1722, the beautiful fount of english which was used in printing Selden's Works, and the Coptic types that were made use of for Dr. Wilkins's edition of the Pentateuch. Under the further encouragement of Mr. Bowyer, Mr. Bettenham, and Mr. Watts, he proceeded with vigour in his employment, and Mr. Bowyer was always acknowledged by him to be his master, from whom he had learnt his art."

The celebrated Mr. Bowyer took Mr. Caslon to James's foundry. Caslon, before that time, had never seen any part of the business, and being asked by his friend if he thought he could cut punches for types, he requested a single day to consider the matter, and then replied that he had no doubt he could. Upon this answer Mr. Bowyer, Mr. Bettenham, and Mr. Watts, actuated by the most liberal zeal for the typographical honour of their country, lent him five hundred pounds to begin the undertaking, and he applied himself to it with an assiduity and success equal to the liberality of his patrons. It is difficult to appreciate the obstacles which he encountered in the commencement of his career; at present the theory and practice of letter-founding are not, as in his time, an "art and mystery," and efficient workmen in every branch are easily procured; he had not only to excel his competitors in his own peculiar branch of engraving the punches, which to him was probably the easiest part of his task, but to raise an establishment, and cause his plans to be executed by ignorant and unpractised workmen. He had also to acquire for himself a knowledge of the practical and mechanical branches of the art, which require, indeed, little genius, but the most minute and painful attention to conduct successfully. The wishes and expectations of his patrons were fulfilled and exceeded by his decided superiority over his domestic rivals and Batavian com-

petitors; the importation of foreign types ceased; his founts were, in fact, in such estimation, as to be frequently, in their turn, exported to the continent. Beginning early in life, attaining an advanced age, and engraving for himself, he had the advantage of completing his specimen on his own plan. For clearness and uniformity, for the use of the reader and student, it is doubtful whether it has been exceeded by any subsequent productions. From 1720 to 1780 few works were printed with the types of any other foundry, and the editions of that interval will bear a successful comparison with those of any period prior or subsequent for typographical regularity and general respectability of appearance. He has since been excelled in individual founts, but as a whole his foundry is still unrivalled; no specimen of the present day which comes near to it in extent and variety, equals it in congruity or appears so strongly the result of one mind.

William Caslon was no less esteemed as a good and worthy member of society, than for his eminence in his art. His conduct to his family, his friends, and his workmen, was alike deserving of praise. The following particulars have been detailed by Sir John Hawkins. It is to be regretted that more anecdotes of so distinguished and excellent a character have not been preserved.

"Mr. Caslon (says Sir John Hawkins, in his Hist. Mus. v. 127) settled in Ironmonger Row, Old Street, and being a great lover of music had frequent concerts at his house, which were resorted to by many eminent masters; to these he used to invite his friends, and those of his old acquaintance, the companions of his youth. He afterwards removed to a large house in Chiswell Street, and had an organ in his concert room. After that he had stated monthly concerts, which, for the convenience of his friends, that they might walk home in safety, when the performance was over, were on that Thursday of the month which was nearest the full moon; from which circumstance his guests were wont humourously to call themselves Luna-tics. In the intervals of the performance the guests refreshed themselves at a sideboard, which was amply furnished; and when it was over, sitting down to a bottle of wine and a decanter of excellent ale of Mr. Caslon's own brewing, they concluded the evening's entertainment with a song or two of Purcell's, sung to the harpsichord, or a few catches, and about twelve retired."

Mr. Caslon's reputation induced his majesty to place him in the commission of the peace for Middlesex, which office he sustained with honour to himself and advantage to the community. His eldest son having attained a suitable age he took him into partnership, and retired to what was then called a country house, at Bethnal Green, where he expired Jan. 23, 1766, aged 74.

His foundry was first established at Helmet Row, Old Street, it was thence transferred to Ironmonger Row, and, ultimately, to Chiswell Street, where it is still conducted by a great grandson, of whom due mention will be made in a subsequent page. William Caslon appears, among his other good qualities, to have been a great votary of Hymen; he ventured thrice into the nuptial noose, but his second and third unions proved unproductive. He left two sons and a daughter; William, his elder, who succeeded him in Chiswell Street, Thomas, his younger, who was an eminent bookseller in Stationers' Court, whose name appears extensively in the title-pages of the day, and Mary, who married, in the first instance, Mr. Shewell, who was in partnership with the first Mr. Whitbread, when his brewery was in an incipient state, and, secondly, Mr. Hanbey, an ironmonger of large fortune. Mrs. Hanbey has evinced her regard for her father and his descendants by bequeathing an adequate sum of money for keeping in repair the family vault of the Caslons, in the church-yard of St. Luke, Middlesex.

The second possessor of the foundry was initiated in the whole art by his father, and its reputation while in his hands suffered no diminution. He married Miss Elizabeth Cartlitch, a lady of beauty and understanding, by whom he had two sons, William and Henry. Dying without a will, in 1778, his property became divided in equal proportions between his widow and two sons, but the superintendance devolved on the elder, William. The foundry received little augmentation in punches in the period between 1778 and 1793, when Mr. Caslon disposed of his share to his mother and sister-in-law. Mr. Henry Caslon who died in 1788, married Miss Elizabeth Rowe.* He left one son, between

* The family of the Rowes is very ancient and has produced, *inter alios*, sir Thomas Rowe, a distinguished ambassador and knight of the garter, of the reign of Elizabeth; sir Henry Rowe, lord mayor of London; and Owen Rowe, less honourably celebrated as one of the judges, sometimes called regicides, of Charles I.

whom, and his widow, he left his share of the foundry. It will not appear extraordinary that a property so divided and under the management of two ladies, though both superior and indeed extraordinary women, should be unable to maintain its ground triumphantly against the active competition which had for some time existed against it. In fact, the fame of the first William Caslon was peculiarly disadvantageous to Mrs. Caslon, as she never could be persuaded that any attempt to rival him could possibly be successful. In October 1795 she was carried off by an apoplectic fit; her testamentary dispositions required the interposition of the lord chancellor, under whose orders the foundry was put up to auction in March 1799, and was bought by Mrs. Henry Caslon for 520*l.* Such was the depreciation of the Caslon letter-foundry, of which a third share, in 1792, sold for 3,000*l.*

On the decease of Mrs. Caslon the management of the foundry devolved on Mrs. Henry Caslon, who, possessing an excellent understanding, and being seconded by servants of zeal and ability, was enabled, though suffering severely under ill health, in a great measure to retrieve its credit. Finding the renown of William Caslon no longer efficacious in securing the sale of his types, she resolved to have new founts cut. She commenced the work of renovation with a new canon, double pica, and pica, having the good fortune to secure the services of Mr. John Isaac Drury, a very able engraver, since deceased. The Pica, an improvement on the style of Bodoni, was particularly admired, and had a most extensive sale. Finding herself, however, from the impaired state of her health, which suffered from pulmonary attacks, unable to sustain the exertions required in conducting so extensive a concern, she resolved, after the purchase of the foundry, to take as an active partner Mr. Nathaniel Catherwood, who by his energy and knowledge of business fully equalled her expectations.

This connection gave a new impetus to the improvements of the foundry, which did not cease during the lives of the partners, and their exertions were duly appreciated and encouraged by the printers. In 1808 the character of the foundry may be considered as completely retrieved, but the proprietors did not long live to enjoy their well-merited success. In 1799, Mrs. Henry Caslon had married Mr. Strong, a medical gentleman, who died in 1802.

In the Spring of 1808 she was afflicted with a serious renewal of her pulmonary attack, in consequence of which she was advised to try the effect of the air of Bristol Hotwells, which probably protracted her life during a twelvemonth of extreme suffering, but could not eradicate the fatal disease. Her fortitude and resignation under this long, continued, and hopeless infliction, could not be surpassed, and were truly admirable. Her sufferings were terminated in March 1809, when she was buried in the cathedral of Bristol. The worthy and active Mr. Nathaniel Catherwood did not long survive his associate, being seized with a typhus fever which baffled the medical art: he died on the 6th of June, very generally regretted.

The Caslon foundry is still upheld, both in the eminence of its character and in its original name, by Mr. Henry Caslon, son of the lady last mentioned. Until the year 1821 he was in partnership with Mr. John James Catherwood, brother to Mr. Nathaniel, the former partner in the house. The additions and varieties made within these few years to the stock of this foundry have been immense. Nothing that perseverance in labour and unsparing expense could effect, either to meet the fashion and evanescent whim of the day, or with the superior view of permanent improvement, has been wanted to keep the concern up to its long-established eminence; and to enable it to rank high among the many able competitors of the present age. The ancient stock can never be equalled—the modern, never excelled. The partnership of Caslon and Catherwood having been dissolved in 1821, the business was carried on by Mr. Caslon alone until 1822, when he admitted into partnership Mr. Martin William Livermore, who for many years had evinced ample talent, indefatigable zeal, and obliging attention, as active foreman and manager of the mechanical department; and every one who had dealings with the Chiswell Street foundry, viewed, with myself, the connection with the highest satisfaction, and with a wish for the success of the firm of CASLON and LIVERMORE.

On the death of Mr. Jackson (of whom see hereafter), his foundry was purchased by the third WILLIAM CASLON, grandson of the first mentioned, who had sold his share of the paternal foundry to his mother and sister-in-law, and removed

to Finsbury Square, whither he transferred Mr. Jackson's materials. Sometime afterwards Mr. Caslon removed them again to Dorset Street; and his house in Finsbury Square was converted by the celebrated bookseller, Mr. Lackington, into the "Temple of the Muses."

In the hands of Mr. William Caslon, Mr. Jackson's foundry was greatly enlarged and improved, particularly by his elegant collection of cast ornaments, a species of typographical decoration which he has the merit of introducing into this country. He is the first letter-founder, of modern times at least, who was honoured with the royal appointment. His specimen of 1785 was very superior to any thing that had been before exhibited by the English founders, and became the pattern for that mode of display of their type which has since been adopted by most of the profession.

If his friends had not yet the pleasure of occasionally receiving his lively salutations—of enjoying the gay, the gentlemanlike converse; the whim, the anecdote, and the agreeable bagatelle of Wm. Caslon, aforesaid, I might be induced to amplify on these points: but the biography of contemporaries is rather delicate ground to touch upon; and I therefore pass by with a hearty wish that his choice spirit may long continue buoyant to impart its enlivening sallies. The mention, however, of one thing must not be omitted. Some years ago he was deprived of sight by the formation of a cataract in each eye: still his musical ear furnished the faculty of distinguishing persons whom he knew by their voices; and his cheerful spirits enabled him to sustain the calamity with a becoming temper of mind. At length, his courage in undergoing the operation of couching three several times was rewarded with the perfect restoration of his sight: and his friends again experience the delight of hearing him *truly* say, "Ah!—I'm happy to *see* you, by ——." But, although ever ready with anecdote and whim to enliven, still more to his honour as a man, may it be added, that he can at once turn the cheerful smile into serious solicitations for the assistance of a decayed old friend, his orphan, or his widow.

In 1807 he relinquished business in favor of his son, the fourth WILLIAM CASLON, who had previously been in partnership with his

CASLON III.

father, and to him we owe the greatest improvement in the art of type-founding that has taken place in modern times; namely, the pierced matrices for large types, which he, without impropriety, denominated *Sans-pareil*. In 1819 Mr. William Caslon, jun., disposed of his foundry to Messrs. Blake, Garnett, and Co., of Sheffield, whither the whole stock has been removed. Mr. Caslon relinquished his profession to enter into a gas-light concern on the north side of the metropolis, transferring to the Sheffield founders such a specimen of type and flowers as will ever cause us printers to regret the loss of such a competitor for fame in this difficult business. The premises in which this foundry was conducted have since been converted into a printing-office.

Upon comparing the books of the time of the celebrated William Caslon with those of the present day, it will be seen that a complete change in the shape and style of types has taken place. His founts rarely occur in modern use, but they have too frequently been superseded by others which can claim no excellence over them. In fact, the book-printing of the present day is disgraced by a mixture of fat, lean, and heterogeneous types, which to the eye of taste is truly disgusting; and it may perhaps be said with truth that a much greater improvement has taken place in the printing of hand-bills than of books. A brief account of the further progress of letter-founding will be necessary to complete the object of this section.

The eccentric Mr. Baskerville, of Birmingham, about the year 1750, cut several founts on a new and fanciful plan, which although they had not the good fortune to obtain the approbation of the printers, possessed considerable merit, and, aided by his excellent press-work, indicated the road to further improvement, where they did not establish a permanent standard. He is censured by Mores for his printing and hot-pressed paper; it must, however, we think, be confessed by the candid observer, that had his letter-founding equalled his printing, his success would not have been doubtful. His foundry was purchased (as before said in page 313), for a society in Paris, by the celebrated M. de Beaumarchais, and it still, I believe, remains at Paris.*

* See more of Baskerville in p. 310, *antè*.

In 1764 Messrs. FRY and PINE began their foundry,* in which an imitation of Baskerville is evident. Their large letters were decidedly an improvement. The foundry was carried on for some years under the firm of *Fry* and *Steele*, but is now EDMUND FRY AND SON. Their Specimen of 1823 has an elegant display and great variety; among which are some very peculiar founts, as well as an ample exhibition of cast ornaments. But the predominance of the fat-face fashion, which ought to be eradicated from every type-foundry, and left for hewers in wood alone, is still apparent in this specimen.

Mr. JOSEPH JACKSON.
Mr. THOMAS COTTERELL.

Mr. Jackson was born in Old Street, September 4th, 1733, and received his education at a school in that neighbourhood, the gift of a Mr. Fuller; whence he was apprenticed to Mr. Caslon. He was exceedingly tractable in the common branches of the business; and had a great desire to learn the method of cutting the punches, which is, in general, kept profoundly secret. His master, and his master's father, constantly locked themselves in the place where they performed this part of the art; and in order to accomplish his object, Jackson bored a hole through the wainscot, and was thus, at different times, able to watch them through the process, and to form some idea how the whole was performed: and he afterwards applied himself at every opportunity to the finishing of a punch. When he had completed one to his own mind he presented it to his master, expecting to be rewarded for his ingenuity: but the premium he received was a severe blow, with a threat that he should be sent to Bridewell if he again made a similar attempt. This circumstance being taken in dudgeon, his mother bought him what tools were necessary, and he improved himself at her house whenever he had an opportunity. He continued to work for Mr. Caslon after he had served his term of apprenticeship, until a quarrel arose in the foundry about the price of work, which terminated in favor of the workmen, who had caused a memorial to be sent to the elder Caslon,

* This foundry is described in Rowe Mores, as Moor's. Moor was an overseer who conducted it for the partners. He was originally a white-smith of Birmingham.

then a commissioner of the peace, and residing at Bethnal Green. However, young Jackson and Mr. Cotterell, being supposed to have acted as ringleaders in this affair, were discharged. Compelled thus to seek employment, they united their slender stock in a partnership, and went on prosperously till Jackson's mother dying, he entered, in 1759, on board the Minerva frigate as armourer; and, in May 1761, he was removed in the same situation into the Aurora, where he was somewhat more successful, having about 40*l.* of prize money to receive at the peace of 1763. On his return to London, he worked for some time under Mr. Cotterell, who was a private in the regiment of life-guards; a situation which, in those days, was esteemed very respectable, and sought for by even substantial master-tradesmen. At length, Jackson was encouraged in a determination to adventure in business for himself by two of his fellow-workmen,* who engaged to allow him a small pittance for subsistence,† and to supply money for carrying on the trade for two years. For the purpose of carrying this arrangement into effect, a small house in Cock Lane was taken, and Mr. Jackson soon satisfied his partners that the business would be productive before the time promised. When he had pursued his labours about six months, Mr. Bowyer accidentally calling to inspect some of his punches (for he had no specimen), approved of them so much that he promised to employ him; adding "My father was the means of old Mr. Caslon riding in his coach, how do you know but I may be the means of your doing the same?" A short time after this he put out a small specimen of one fount, which his former young master carried to Bethnal Green with an air of contempt. The good old justice treated it otherwise; and desired his son "to take it home and preserve it; and whenever he went to cutting again, to look well at it."—It is but justice to the third William Caslon to add, that he always acknowledged the abilities of Jackson: and though rivals in an art which requires the greatest exertions of ingenuity, they lived in habits of reciprocal friendship. Business rapidly increasing, Mr. Jackson removed to Dorset Street for a

* Mr. Robinson and Mr. Hickson, who were also privates in the Life-guards.

† Mr. Jackson's salary for conducting the business under this partnership, was 62*l.* 8*s.* per annum.

more capacious workshop. He was applied to by the late duke of Norfolk to make a mould to cast *a hollow square*. Telling the duke that "he thought it practicable," his grace observed, that "he had applied to all the skilful mechanics of London, Mr. Caslon not excepted, who declared it impossible." He soon convinced the duke of his abilities: for in the course of three months he produced what his grace had been years in search of; and was ever after held in great estimation by the duke, who considered him the first mechanic in the kingdom. In 1784 he married the widow of Mr. Pasham, a printer, which materially assisted him in the means of carrying on business. In 1790 his foundry was destroyed by fire, and his moulds and matrices much damaged. He felt this calamity so severely as never to recover his health, or his usual energies for business. The foundry was rebuilt; but the chief materials above-named were not wholly restored (though much had been done towards it) at the time of his death. He died of a scarlet fever, January 14th, 1792, having survived his second wife but a few months.

To particularize the articles of his foundry which were most reputed for their excellence, when all were highly meritorious, would be a boundless task. Let it suffice to mention, as matters of difficulty and curiosity, the fac-simile types which he cut for the *Doomsday-book:* and an *Alexandrian Greek*, under the direction of Dr. Woide, upon which the New Testament was printed. The matrices were afterwards deposited in the British Museum. In 1812 the Rev. H. H. Baber, published the Book of Psalms; and the three volumes containing the Old Testament are now, by the liberality of parliament, in the course of completion under the same laborious attention of Mr. Baber, at the press of Mr. Richard Taylor, whose success in executing the former volume is the best pledge that this truly national work will reflect high credit upon our profession, as well as upon the learned editor.—[See *Synopsis.*] Another *Alexandrian Greek*, under the direction of Dr. Kipling, for the University of Cambridge—and a *Nagri*, directed by captain Kirkpatric, for the East India Company, are also to be reckoned among the evidences of this artist's superior merits. It would be culpable to omit some mention of the types which Mr. Jackson cut for the splendid edition of the Bible, published by Mr. Macklin, which certainly exhibited a

pattern of the most perfect symmetry to which the art had at that time arrived. Mr. Figgins also claims the honour of having cut the two-line english fount for this work. Both are right; but some explanation is requisite. I have made the necessary inquiries, and believe the following to be the true state of the rival claims: the first part of Macklin's Bible was printed with a fount of two-line english which Mr. Jackson cut for Mr. Bensley, about the year 1789. When Mr. Bensley had proceeded some way in the work, he wished to renew the fount: but not choosing to purchase it of the then possessor of Mr. Jackson's matrices, he applied to Mr. Figgins to cut a fount to correspond with that he had begun upon. Mr. Figgins undertook the task; and the fount, which was a perfect imitation of the other, was put into use to begin "Deuteronomy," about the year 1793. Mr. Jackson was, in every sense of the word, a master of his art; of which there was no branch wherein he could not at least equal in excellence and expedition the best journeyman in the trade.

Mr. Cotterell, from the time he was left to himself by Mr. Jackson, continued to increase his founts as low as *brevier*. But he also cut some founts of dimensions which till then were unknown; and which Mr. Mores calls "proscription, or posting letter, of great bulk and dimension, as high as to the measure of 12 *lines of pica!*" What would these founders think of *posters* of the present day, when a single letter, Q, is made to fill a whole broad-sheet for a lottery-puff?

Mr. Vincent Figgins was apprentice to Mr. Jackson. He was bound in 1782; and served him as apprentice and journeyman till his death in 1792, having, for the three preceding years, had the entire management of the concern. Of this candidate for public favor as a letter-founder, Mr. Nichols, in his Anecdotes, ii, 361, says, "With an ample portion of his kind instructor's reputation, he inherits a considerable share of his talents and industry; and has distinguished himself by the many beautiful specimens he has produced; and particularly of Oriental types." On the death of Mr. Jackson, he failed in succeeding to his foundry and materials, by not bidding more than he conscientiously thought they were worth; or than he should be enabled to pay. But his character had long been observed by Mr. John Nichols, who, for many years, was the

intimate friend of Mr. Jackson. Under his auspices Mr. Figgins was encouraged to rear a foundry for his own name. A large order (two founts, great primer and pica, of each 2,000lb., even before he had produced a single specimen) gave the young adventurer the best heart to proceed: neither did his liberal patron suffer him to want the sinews of trade as long as such assistance was required.* The patronage also of the delegates of the Oxford University press; and the type on which Mr. Bensley printed those two splendid works, Bowyer's History of England, and Macklin's Bible,† established Mr. Figgins in all the reputation he could desire; and he has never since ceased in his efforts to make this foundry one of the most complete in England. No foundry existing is better stocked with matrices for those extraneous sorts which are cut more with a view to accommodation than profit: such as, astronomical, geometrical, algebraical, physical, genealogical, and arithmetical sorts: and I feel it particularly incumbent on me to add that, as his specimen bears equal rank with any for the number and beauty of its founts; so he has strayed less into the folly of fat-faced, preposterous disproportions, than either Thorne, Fry, or Caslon. I consider his five-line pica german-text, a typographic curiosity.

Mr. Robert Thorne.—The extremely bold and fat letter, now prevalent in job-printing, owes its introduction principally to Mr. Thorne, a spirited and successful letter-founder, recently deceased. Mr. Thorne served his time under Mr. Cotterell before-mentioned. His foundry in Fann Street, Goswell Street, has been purchased by Mr. Thorowgood.

Mr. William Martin, brother of Mr. Robert Martin, of Birmingham, who served his time with Baskerville, being patronized by Mr. Bulmer, of the Shakespeare printing-office, began, about 1790, a foundry in Duke Street, St. James's. A decided imitation of Baskerville is visible in his romans and italics, but

* It is a singular coincidence that the three eminent printers, successive proprietors of the same concern, should be the patrons of three foundries which have so eminently flourished: namely, the first Mr. Bowyer was the patron of the first Mr. Caslon; the second Mr. Bowyer, of Mr. Jackson, who served his apprenticeship to Mr. Caslon; and Mr. John Nichols, of Mr. Figgins, who, as just before-stated, served his time to Mr. Jackson.

† See preceding page.

his greeks and orientals formed the most valuable part of his collection. His foundry, in 1817, was united to the Caslon.

To complete the list of London letter-founders, we must add the names of Mr. BARTON, of Stanhope Street, Clare Market; of Messrs. POUCHEE and JENNINGS, Great Wild Street, Lincoln's-Inn Fields; of Mr. AUSTIN, of Worship Street; and of Mr. HUGHES, a very able engraver, lately in partnership with Mr. Thorne; and who is commencing a foundry in Dean Street, Fetter Lane.

Mr. BARTON was early initiated in mechanical science by Mr. Maudsley the engineer; he was formerly in partnership with Mr. Harvey, an engraver; by whom his founts were principally cut. Mr. Austin engraved the founts of Messrs. Stevenson's unsuccessful foundry; and has since executed most of those of Messrs. Wilson, of Glasgow; and of Mr. Miller, Edinburgh.

I should probably be thought guilty of injustice, and certainly not be emulating the impartial correctness of Mores, were I to omit the names of Messrs. Brown, Lench, Heaphy, Simmons, and Black, as separate and distinct London letter-founders. I have also reason to believe that, some years ago, the foundry of Mac Phial, which Mores has commemorated by a most humorous paragraph, was carried on either by the same individual, or a descendant; but it continues to be screened from observation by the same cloud which obscured it from the curiosity of that illustrious typographical historian.

Messrs. Bower, Bacon, and Bower of Sheffield; Messrs. Blake, Garnett, and Co., of the same place, who purchased the foundry of Mr. William Caslon, junior;* and Mr. Bessemer of Charlton, near Hitchen, Hertfordshire, complete the list of provincial letter-founders in England.

Messrs. WILSON, of Glasgow, have long ranked as eminent letter-founders, having not only enjoyed a monopoly of favour for many years in the sister kingdom; but by the durable quality of their metal—the excellent finish of their type—and the advantageous terms which, from the comparative cheapness of living, and the low rate of wages to journeymen in Scotland, they have been enabled to offer, most of the principal printers in London

* See p. 353.

have been induced to supply themselves with a considerable portion of their chief working founts from this foundry; the letter being delivered and the old metal taken in return, without the least charge or expense on the score of carriage. The necessary materials having been kindly and readily contributed by the present Messrs. Wilson, the son and grandson of the worthy professor, I am happy in being able to give, as well a portrait, as a short memoir, of the FATHER of SCOTCH letter-founders.

Mr. ALEXANDER WILSON was born at St. Andrew's, in Fifeshire, in 1714. Being designed for the medical profession, and having consequently received a liberal education, he left Scotland for London in the year 1737, in order to seek for employment. Soon after his arrival in the British metropolis he engaged himself with a surgeon and apothecary of good character, who was a native of France. He had the entire charge of the shop, and also the care of some of the patients, for which services he received a small annual salary, besides his board and lodging in the house. After having been in this situation about twelve months, Mr. David Gregory, professor of mathematics at St. Andrew's, being in London, introduced him to Dr. Charles Stewart, physician to his grace, Archibald, duke of Argyle, then lord Isla. Dr. Stewart received him with great kindness, and took an early opportunity of making him known to lord Isla, who was pleased very soon to bestow upon him marks of his attention and favour. In his interviews with this nobleman Mr. Wilson had his curiosity much gratified by the valuable astronomical and physical apparatus of his lordship, to which he had occasionally access. Mr. Wilson, on the other hand, was able to contribute, in some degree, to the amusements of his patron, by constructing for him, and certain of his friends, thermometers of different kinds, with more perfection and elegance than had at that time been common in London. Nearly eighteen months elapsed in this way, during which time he conciliated the esteem of his employer by a faithful discharge of whatever business was committed to his care: and in return for his assiduities he was permitted, whenever his attendance on the shop or patients could be conveniently dispensed with, opportunities of keeping up his connections with persons of a philosophical turn of mind. Mr. Wilson has often been heard to speak with satisfaction of this period of servitude, and to express his content-

WILSON

ment at the lot which had then fallen to him; and throughout his whole life he was particularly distinguished for a like serenity of temper and felicity of disposition.

While he was thus passing his time in a manner which he considered comfortable for one at his first entrance upon the world, a circumstance accidentally occurred which gave a new direction to his genius, and which, in the end, led to an entire change of his profession. This was a chance visit made one day to a letter-foundry with a friend who wanted to purchase some printing-types. Having seen the implements and common operations of the workmen usually shown to strangers, he was much captivated by the curious contrivances made use of in prosecuting that art. Shortly afterwards, when reflecting upon what had been shown him in the letter-foundry, he was led to imagine that a certain great improvement in the process might be effected; and of a kind, too, that, if successfully accomplished, promised to reward the inventor with considerable emolument. He presently imparted his ideas upon the subject to a friend named BAIN, who had also come from St. Andrew's; and who possessed a considerable share of ingenuity, constancy, and enterprize. The consequence of this was, the resolution of both these young adventurers to relinquish, as soon as it could be done with propriety, all other pursuits, and to unite their exertions in prosecuting the business of letter-founding according to the plan which had been contemplated with a view to improvements. After some further deliberation Mr. Wilson waited upon his patron, lord Isla, to whom he communicated his views, and the design of embarking in this new scheme; and derived much satisfaction from his lordship's entire approbation and best wishes for its success.

Mr. Wilson and Mr. Bain then became partners in the project; and, having taken convenient apartments, applied with great assiduity to the different preparatory steps of the business. At an early stage they had proofs of difficulties to an extent which had not been anticipated; and which, had their magnitude been foreseen, would probably have altogether deterred them from their attempt. But although they found their task grow more and more arduous as their experience improved, it may yet be mentioned, as a fact which bespeaks singular probity of mind, that they never once attempted to gain any insight whatever through

the means of workmen employed in any of the London foundries, some of whom they understood could have proved of considerable service to them. During their experiments they found their residence in London attended with an unavoidable expense, which they perceived could not be much longer supported without turning their industry to some account by opening a foundry, and bringing their productions to market. Under these circumstances they determined upon returning to Mr. Wilson's native city to bring their experiments to a finish; and whither without loss of time they repaired, continuing to prosecute their objects at a much less expense, and much better circumstanced as to convenience.

Thus, Mr. Wilson, after an absence of little more than two years, found himself again among his friends at St. Andrew's: and it will be no great reflection upon his ingenuity to mention that the scheme of improvement which originally determined him and his partner to attempt letter-founding, became, at length, every day less hopeful, until it finally baffled all their endeavours.

They, however, having thus engaged in a new business, and having acquired some little experience in the art (in spite of their unsuccessful effort in the accomplishment of their first plan), went on with a desire of establishing letter-founding in Scotland; and, relinquishing altogether the idea of going upon the new invention, they set about to pursue the ordinary mode of preparing the types. In their attempt to prosecute this speculation, they found themselves in a more sure, though still in a difficult track, and in which they had no guide whatever but their own talent of invention and mechanical ability: and it was by the aid of these that they carried things forward until, at length, they were enabled to cast a few founts of Roman and Italic characters; after which they hired some workmen whom they instructed in the necessary operations; and at last opened their infant letter-foundry at St. Andrew's, in the year 1742.

Most of the printers in Scotland then resided at Edinburgh and Glasgow; and their great distance from the London letter-foundries having subjected them to great inconveniences, they had an interest in encouraging the manufacturing of types brought so immediately within their reach. The liberal orders of their typographical countrymen soon showed Messrs. Wilson and Bain that they were engaged in a regular business, the profits of

which satisfied their moderate views; and under such encouragement they continued their exertions so as to enable them to supply a greater variety of founts. Thus employed, they had lived at St. Andrew's about two years, when the increasing demand for their types, and the prospect of extending their sales to Ireland and North America, induced them, in 1744, to remove to CAMLACHIE, a small village, about a mile eastward of the city of GLASGOW.

The immediate co-partnership between Mr. Wilson and Mr. Bain continued from their first outset in attempting letter-founding, as before described, until the Autumn of 1747, when it was resolved that, in order to enable them to extend their connexions in Ireland, one of the partners should settle at Dublin. Another change of the place of residence was thus, on the part of one of them, rendered necessary to carry their purpose into effect; and it was agreed that the cast of a die should determine which of the two should remove. The chance having been put to the issue, it fell to the lot of Mr. Wilson still to remain in Scotland. About two years after this separation the partnership was totally dissolved by mutual consent, and Mr. Wilson, although strongly solicited to settle elsewhere, preferred his situation in the West of Scotland to any other which presented itself.

During his residence at Camlachie he had contracted habits of intimacy and friendship with some of the most respectable inhabitants and eminent characters in that quarter, among whom may be particularly reckoned the professors of the University of Glasgow, and Messrs. Robert and Andrew Foulis, the university printers. The growing reputation of the University Press, conducted by these latter gentlemen, afforded more and more scope to Mr. Wilson to exercise his abilities in supplying their types; and being now left entirely to follow his own judgment and taste, his talents as an artist in the line to which he had become devoted, became every year more conspicuous. When the design was formed, by the gentlemen of the University, together with the Messrs. Foulis, to print splendid editions of the Greek classics, Mr. Wilson, with great alacrity, undertook to execute new types, after a model highly improved. This he accomplished, at an expense of time and labour which could not be recompensed by any profits arising from the sale of the types themselves. Such

disinterested zeal for the honour of the University Press was, however, upon this occasion, so well understood as to induce the University, in the preface to the folio *Homer*, to mention Mr. Wilson in terms as honourable to him as they had been justly merited.

In 1760 Mr. Wilson was honoured with the appointment of the practical astronomy professorship in the University of Glasgow; about two years after which the foundry was removed into the more immediate vicinity of the college. After the appointment of Mr. W. to the astronomical chair, the further enlargement and improvement of the foundry devolved upon his two eldest sons, and he lived to witness its rise, under their management, to the highest reputation.

It is but justice to add that the Glasgow foundry of Messrs. Wilson has kept full pace with every *real* improvement of the London foundries; indeed, so closely has this rivalry been contested, that some of their founts have even served, in their turn, as models for imitation. It has, however, of late, experienced a formidable rival in

Mr. Millar, of Edinburgh, type-founder to his majesty for Scotland, whose letter so much resembles that of Messrs. Wilson as to require minute inspection to distinguish the one from the other. The success of Mr. Millar has, in its turn, raised him a competitor in the person of

Mr. Matthewson, who has commenced a foundry at Edinburgh.

Properties and Shapes of Types.

In the early ages of printing, the uniform character used was an imitation of the *old Gothic*, or *German*, from which our *old English*, or *Black*, was afterwards formed,—a character which is now obsolete in the west of Europe, except for the purpose of reprinting old works in fac-simile, or for increasing variety in the display of titles, placards, &c. but it still merits our veneration when preserved pure from fanciful and ridiculous distortions, as the character in which our immortal Caxton, Wynkyn de Worde, Faques, &c. &c. first exercised the art. In Germany, and the

states and kingdoms which lie round the Baltic, works for ordinary use are still printed in type of this description, or which we call German text. The "Printer's Manual," printed at Leipsic in 1791, is in this type; having *Roman* for quotations, *Italic* for names—a larger face on the same body of German, and sometimes that larger size hair-spaced in even the lower-case letters, except where the double letters occur, thus, S c h o ï ff e r, for particular passages: but even in those nations many works are printed in their own language with roman letters. The probable reason why the Germans, and those who patronize the Gothic characters, have not altogether rejected them for the roman, may have been owing to their apprehensions of sharing the fate of the primitive printers, who suffered greatly in their attempt, from the dislike the learned then showed to works which had been printed in that character, and were compelled to return to their old mode of using the gothic. The same reason may be assigned why the Dutch still adhere to the *black* letter, in printing their books of devotion and religious treatises, while they make use of the roman in their curious and learned works.

In 1465 a work called "Lactantius's Institutes" was printed in *Monasterio Sublacensi Subbiaco*, in the kingdom of Naples, in a kind of semi-gothic of great elegance, approaching towards the subsequent improvement;* but who the printer was is unknown.

In 1467 the Italian printers cast Greek types; and, in 1480, the Hebrew character was cast in types at Saccino, in the duchy of Milan. About the end of the sixteenth century the Vatican and Paris printers introduced the Syriac, Arabian, Persian, Armenian, Coptic or Egyptian characters, which, with Chinese, Indian, and several other Oriental types, have been improved and published by the printers in London.

In 1467, the first printers who settled at Rome, Conrad Sweynheim and Arnold Pannartz,† printed an edition of CICERO's

* Nichols, Orig. 101, &c.

† They were Germans, and like many of US of the present day, appear to have printed much more than they could find purchasers for. After having printed, in six or seven years at most, a great number of very beautiful and correct editions, these ingenious printers were reduced to the most necessitous circumstances. Their learned patron, the bishop of Aleria, who was the author of a beautiful edition of Aulus Gellius, which they printed in 1469, presented a petition to Pope Sextus IV. in 1471, in behalf of "these worthy

"Epistolæ Familiares" in a type which they call *Roman*, in honour of that city, and established that kind of type, which, although somewhat altered, by subsequent improvement, in mathematical symmetry, is the *Roman* of the present day. The paper and types of Sweynheim and Pannartz are both excellent. The great singularity of the latter was, that they did not place the dot or tittle over the i; and at the end of words they put the long s.

The Germans and their confederates differ from us in calling those letters *Antiqua*, which we, as well as the French, and other nations, term *Roman;* an inquiry into the cause of this distinction can be of small importance, further than it might prove a desire in the Germans to deprive the ancient Romans of the merit of forming those letters.

That good Roman makes the best figure in a specimen of typography, cannot be disputed; and this superiority is greatly improved by the founders of the present day. A printer, in his choice of type, should not only attend to the cut of the letter, but also observe that its shape be perfectly proportionate, and that it *lines* or ranges with accuracy. The ingenious Mr. Moxon says "that the Roman letters were originally intended to be made to consist of circles, arcs of circles, and straight lines; and that, therefore, those letters that have these figures either entire or else properly mixt, so as the course and progress of the pen may best admit, may deserve the name of true shape."

By attending to the above mathematical rules, the letter-cutter

and industrious printers," in which he represents their great merit and misery in the most pathetic terms, and declares their readiness to part with their whole stock for subsistence. "We were the first of the Germans," say they, "who introduced this art, with vast labour and cost, into your holiness's territories, and encouraged, by our example, other printers to do the same. If you peruse the catalogue of the works printed by us, you will admire how and where we could procure a sufficient quantity of paper, or even rags, for such a number of volumes. The total of these books amounts to 12,475; a prodigious heap, and intolerable to us, your holiness's printers, by reason of those unsold. We are no longer able to bear the great expense of housekeeping for want of buyers, of which there cannot be a more flagrant proof than that our house, though otherwise spacious enough, is full of quire-books, but void of every necessary of life."—This is probably the first mention we can find of *quire-books:* but, alas! the quire-stock of 1824 is very much akin to that of three centuries and a half since.

may produce Roman characters of such harmony, grace, and symmetry, as will please the eye in reading, and, by having their fine strokes and swells blended together in due proportion, will excite admiration in those who may take the pains of comparing the smaller with the larger-sized letters.*

It is equally important that the types should have a deep face, which will depend upon the depth of the punches, and their hollows being in proportion to the width of the respective letters, and likewise that the punches be sunk deep into the matrices; for should there be a defect in this respect, the type will prove unprofitable to the purchaser. Some letters are more liable to lose their appearance than others, from containing finer strokes, or from their being more generally used, as the a, e, t, &c. or the kerned letters, as f, j, &c. The necessity of re-casting such sorts must be obvious, for by so doing a fount may be continued serviceable, where it was thought to be generally defective, when, in fact, the blemish rested solely with those particular sorts.

* The above opinion of Moxon, with the paragraph which is added to it, as in Mr. Stower's grammar, are not here inserted with quite an assentive opinion. Although every praise is due to the ingenuity of Mr. Moxon, as well as to his mathematical and mechanical abilities,—although I am quite ready to grant that "fine strokes and swells blended together in due proportion, excite admiration," yet am I not quite so ready to allow that "harmony, grace and symmetry," are the result of Moxon's application of mathematics to letter-making, as attempted in his *Regulæ Trium Ordinum Literarum Typographicarum*. That "Roman letters," as the extract says, "are made to consist of circles, arcs of circles, and straight lines," is, indeed, very true; and so far they may be denominated mathematical combinations; and also, these self-same curves and straight lines serve to make up Roman letters, the Italics and the Blacks, and supply the elements of every letter of every variety, however *outre;* and, in short, that every formation in the whole range of the ugly and the beautiful throughout art and nature, is thus far *mathematically* composed. But it would be the greatest of absurdities to entertain an opinion that all things which partake of curves and straight lines will submit to analysis, and be thus reducible to mathematical rules of formation. The perfection of beauty in letters, like the perfection of beauty in features, must depend, then, on the well-proportioned adaptation of all the parts to one another, so as to satisfy, when presented as a whole, the eye that has been accustomed to compare the beautiful with the *more* beautiful, until ideas of the truly tasteful, upon which the judgment must be founded, have undergone a thorough refining.

The quality of the metal of which type is composed demands of the printer particular attention. This is, however, dependant entirely upon the discretion of the founders, and a considerable difference prevails among them, often to the detriment of the printer, to whom it is a matter of great importance that his type should repay him ample interest for its immense expense. Some of the best judges in our profession have been of opinion that more attention has been paid to the interest of the printer, in this respect, by the letter-founders in Scotland, than has been done by those of the metropolis; and I cannot help partially joining in the opinion, although I think other causes contribute to the greater durability of the Scotch founts than what merely belong to the quality (that is, greater hardness united with toughness) of the metal. The founders of Glasgow and Edinburgh have adhered, in the cutting of their type, to the mode practised by the earlier artists, in considering a due strength of footing, as necessary to be given to the ceriphs. When the London founders introduced the extreme of sharp lines at the bottom of their type, in imitation of the French, their finely-printed Latin specimens exhibited a beautifully regular appearance, or *lining*, like an exceedingly fine rule along the line of type; and the founts, when first put into use, for fine work, had a good effect; but the beauty soon vanished. A little wear broke off the finer parts, and the letter exhibited nothing but its stronger stems standing on stumps in lieu of feet. In order to give some exemplification of this difference, let me exhibit two letters upon a large scale of both fashions:—

H H

In the one will be seen a strength gradually decreasing that would prevent any part but the finest extremity from breaking off: in the other there is nothing to prevent the whole of the fine stroke from going at once by the least pressure or wear; and their liability to be thus injured has been increased by the fine lines being made as perpendicular as possible for some depth, instead of being slanted off to a broader base, and thus made more secure against the resistance of pressure.

We shall refer again to Mr. Moxon, who has particularized the quantity of each sort of metal he made use of in his composition for type. "For 28lbs. of [type] metal, it required 25lbs. of lead, mixed with 3lbs. of iron and antimony melted together."

In Germany, steel, iron, copper, brass, tin, and lead, are incorporated with each other by means of antimony; and the quality of this metal is such, if properly prepared, that it will not bend, but break like glass; it is harder than tin and lead, something softer than copper, and melts sooner than lead. How the metal is prepared in Holland is not precisely known; but there is sufficient reason to suppose that it differs from both the German and the English.

In the choice of type, as before-mentioned, attention should be paid to its ranging, or standing even in line, as perfection, in this particular, will generally take off the effect of an ill-shaped face; but it is difficult to determine which of the two defects is the most unpleasant to the eye. The letters should also stand parallel; that is, they must neither get in nor drive out at the head or foot; a fault which cannot be too much reprobated, and is not to be remedied but by re-dressing [Qu. re-casting?] the whole fount. Each letter should bear its due proportion, as to thickness; for it sometimes happens that a fount will be cast so unequal that some of the letters appear with a full face, and others with a thin one.

In ordering a fount of letter, care should be taken that the nick be made to vary from that of any other fount of the same body in the same house; and also to have the nick of considerable depth, as advantageous to the compositor, from its more readily catching the eye than a shallow one, and, consequently, greatly assisting him in the business of composing.

Of Italic Letter.

Italic letters owe their invention to Aldus Manutius, by birth a Roman, and who, in the year 1490, erected a printing-office in Venice, where he introduced the Roman types of a neater cut, and invented that beautiful letter which we and most of the nations in Europe know by the name of Italic, though some

German writers and their followers have attempted to call it the *cursive*, to obliterate the memory of its original descent. Aldus invented this sort of letter in order to accomplish the design he had conceived of executing a collection of all the best works in a smaller form (in 8vo.) than was at that time in use, the first idea of which, we are assured, was given to him by Petrarch's writing; and he employed Francisco di Bologna, an able engraver, who had engraven all the other characters of his printing-office, to execute this, for sometime called, after the name of its inventor, *Aldine;* Aldus obtained several privileges for the exclusive use of this Italic type from the senate of Venice, as well as the pontiffs, Alexander VI, Fabius II, and Leo X.—See Horne, 242: see, also, further notice of Aldus in note to poem, p. 301.

Italic was originally designed to distinguish such parts of a book as might be said not strictly to belong to the body of the work, as prefaces, introductions, extracts, annotations, &c. all of which it was the custom formerly to print in Italics, so that at least two-fifths of a work appeared in that character.

In the present age it is used more sparingly, the necessity being supplied by the more elegant mode of introducing extracts within inverted commas, and poetry and annotations in a smaller-sized type. It is of service often in the displaying a title-page, or distinguishing the head or subject-matter of a chapter from the chapter itself; but it is mostly used in spelling-books, grammars, dictionaries, &c. to distinguish more readily to the learner the different languages or parts of speech.

It is greatly to be wished that the use of Italic could be governed by some rules. And here may we be allowed to recommend to those authors, who appear so solicitous, by their frequent introduction of Italic, that the beauty and essence of their writings should not be lost, to trust a little more to the discernment and understanding of their readers. Blair, in his Belles Lettres, justly observes, that crowding all the pages of a book with Italic characters, is just the same with using no such distinction at all. It also very materially retards the progress of the compositor, who has the trouble of repeatedly moving from one case to another.

Not only does Italic confuse the reader, but it destroys, in a great degree, the beauty of printing, because the bold face of the Roman suffers by being contrasted with the fine strokes of the

Italic; that symmetry is destroyed which it is so necessary and desirable to preserve, the position of the Roman being perpendicular, and that of the Italic, oblique. Nor can we discover for what purpose it was at first introduced into the body of a work, in names of persons, places, dates, &c. unless that might have been thought an elegance, which the better judgment of the 18th century, considers otherwise.* A comparison of the agreeable appearance of a page in which no Italic words are seen straggling, with one in which the pleasing regularity of the Roman print is here and there broken in upon by the intrusions of a discordant type, will be at once sufficient to persuade authors to dispense, as far as possible, with the custom of mingling Italic with Roman in their works, especially when it is desirable to have the print, as perfectly as may be, harmonize.

Let it not be imagined, from what has been said, that we enter our protest against the necessity of Italic in every instance; its utility must be allowed in critical and satirical works, &c. where the sense requires a distinguishing mark on a particular word or

* To give an instance of the ridiculous degree of precision to which this was carried (as also the equally absurd fashion of using a capital to every word which could possibly be deemed a substantive) a question and answer from Nelson's Fasts and Festivals (8vo. edition) will suffice:—

Q. *What was the Form of St.* Andrew*'s Cross?*

A. The Instrument of his *Martyrdom* is commonly said to have been something peculiar in the Form of the letter X, being *a Cross decussate*, two Pieces of Timber crossing each other in the Middle: And hence known by the Name of St. *Andrew*'s *Cross.*

It will be seen that there has been no want of method in this arrangement. 1. The Questions to be Italic the answers Roman; but the Q. and the A. to be reversed, viz. the Q. to be Roman for the Italic, and the A. to be Italic for the Roman. 2. All substantives to be capitaled; all noun-substantives to be Italic in the Roman part, and Roman in the Italic part, this not to extend to the sign of the genitive case, as the letter s is to be the reverse. Also particular words to be distinguished contrarywise.—The labour to a compositor, and also the reader, on such a work as this, will be little short of that required upon a work of which he understands not a single word, and the book, when printed, exhibits a motley appearance of Roman and Italic, capitals and lower-case, till those who are not sufficient judges of typography to know the cause, wonder why the page is so confused and tiresome to the eye.

subject: we would wish to be understood as arguing not against the *use* of Italic, but the *abuse* of it.

Italic, if justly formed, discovers a peculiar delicacy, and requires considerable mathematical nicety in the letter-cutter to keep the slopings within the degree requisite for each body. But this is not always attended to, and a want of uniformity is too often observed in the angular position of various letters of the same fount, particularly the capitals.

Script.

WITHIN the last three or four years very great improvements have been made in script types.* Those of the third William Caslon and Jackson are clumsy imitations of a kind of writing between set and running hand, and have very little merit, either in the contrivance or execution. Some that have been subsequently produced are superior; but being cast upon the common parallelogram moulds, and the junctions being in the centres of the fine or up-strokes, are wholly deficient in freedom and correctness. For the recent advances towards a more perfect imitation of fine penmanship we are indebted to our Gallic neighbours, who have, in this instance, maintained their character for originality of invention. M. Firmin Didot has the merit of having invented or introduced a mould of a peculiar form, and I am indebted to a scientific friend for the following geometrical description. The figure is formed of two unequal parallelograms, of which the angles and two of the sides are equal. The parallelograms are joined, but not centrally, and in such a manner that their sides, produced, are parallel; that part of the side common

* Of Scripts, though in former times called *Cursive*, the observation of Rowe Mores will still apply. He says (p. 33) "The cursorial is a flimsy type, imitating a pseudo-Italian hand-writing, and fitted for ladies and beaux-candidates for fair places donative, who court a plattin to save unnecessary trouble, and to conceal their management of a pen." This purpose is likely to be still better effected by the modern invention of lithographic circulars, by which they can really display and send fac-similes of their hand-writing to the world at large, if they happen to be able to manage a pen dexterously; and if not, scribes may be borrowed to suit their purpose.

to both parallelograms being omitted. Thus every letter locks in with its neighbour, without which contrivance it would be impossible to compose in lines, or justify in the composing stick. Indeed, to effect this, and to form a square at each end of the line, another sort of spaces must be made, which are therefore called "line-beginnings," "line-endings," they are thus formed, so that a spaced word, when cut longitudinally, would show the following section :—

Still a great obstacle in bringing even these types into general use has been, the difficulty of teaching the compositor all the necessary variations and combinations of character; as some of the characters, the *r* for instance, have eight variations, besides those in which the same letter may be used as a double, or logotype. Towards an attempt at this, I devised a method by which a pair of common cases might be easily converted into script cases, by certain divisions of the boxes with reglet, rule, &c. but I afterwards found it necessary to oblige the compositor to *study* the combinations which ought to follow the letter he had last put into his stick; for this purpose I found nothing better nor so easy as a pair of common upper cases, laying the various kinds of each letter in succession, so that the workman might glance his eye to every one for the purpose before stated. This has succeeded very well in my own practice, for the double pica, great primer, and english scripts. Still a compositor has much to learn, and patience to exercise, before he can make good work. I find paying double price hardly compensates his time.

This plan has obviated the necessity of *kerning*, which is so great an objection to the old scripts; and, in order to render the junction of the letters more complete, Mr. Didot devised a separation of the letters into forms which produce, when properly combined, an appearance which scarcely admits of improvement, and which, could the impression of letter-press vie with that of copper-plate, might emulate the chef-d'œuvres of Tomkins and Ashby. M. Didot's scripts, however, labour under the disadvantage of great difficulty in the composition, each letter not being formed entire

upon one body, or piece of metal, but such component parts as can, by usual combination of the letters, form the last part of one letter and the first part of the next, being united in one piece with the junction stroke. The other French letter-founders, in consequence of M. Didot's having secured to himself the use of the slanting body by a brevet d'invention, or patent, have been confined to the square body, and have, therefore, in their attempts in script, made no improvement on the old. Mr. Figgins and Mr. Thorowgood's scripts are on the plan of M. Didot's. Messrs. Caslon and Livermore's are on an original principle, invented by M. Boileau, a very ingenious French engraver, the tendency of which is, to unite the beauty of M. Didot's plan with greater facility of composition. How far they have succeeded, with respect to beauty, may be seen by the specimens after given.

The measure must be made so much wider than you intend it should appear in print, as to allow for the "line-beginning" and the "line-ending." Many of the characters, both single and compounds, which form the most usual junction with other letters, are cast of two degrees of thickness—the *thin* for joining with the letters commencing with a junction stroke, as the *m n r v x y z*, and the compounds commencing with these letters. The *thick*, which are distinguished by an extra nick, and marked 2 in the plan of Caslon's cases, to go before *a b c d e f g h i k l o p q t u*, &c. Many of the letters have from two to eight varieties of *before* and *after-junction* strokes according to the adjoining letters with which they may be placed, or for final letters, example [see the scheme of cases] the *a* 2 sorts, *c* 2, *d* 2, *e* 2, *f* 2, *g* 2, *h* 2, *i* 2, *k* 2, *l* 2, *m* 4, *n* 4, *p* 2, *r* 8, *t* 3, *u* 2, *y* 4.* Nothing but a good eye, judgment, and practice, will enable a compositor to understand these peculiarities; and to those I must leave him. In locking up a forme of script type the most particular attention must be paid to *planing down*, which must be done before the quoins are fastened more than by a slight pressure of the thumb; for from the letters overhanging and closing in with one another, no force of the mallet and plainer can level the face of the type after the forme has been locked up to any degree of tightness.

* This preposterous fashion of having figures larger than the letters, will be hereafter observed upon.

Of the Names of Letter, as regards its Size, and the Proportions of one Size to another.

The names of the different bodies of letter here exhibited in their descending orders, are according to the proper appellation which is given to each of them in England, France, Germany, and Holland; by comparing one with the other, we may endeavour to account for the names of some of them.

This variety is still increased by the various faces and bodies of different founts of each kind, so that it may be said a large, medium, and small, may be added to each.

NAMES OF TYPE.

ENGLISH.	FRENCH.	GERMAN.	DUTCH.
	Grosse Nompareille.		
	Gros Double Canon	Imperial.	
	Double Canon	Real.	
1 French Canon	Gros Canon	Missal	Parys Romeyn.
2 Two Lines Double Pica ...	Trismegiste	Sabon	Groote Kanon.
3 Two Lines Great Primer ...	Deux Points de Gros Romain	Canon	Kanon.
4 Two Lines English ...	Petit Canon, ou deux Saint Augustins	Roman	Dubbelde Augustyn.
5 Two Lines Pica	Palestine (deux Ciceros)	... ...	Dubbelde Mediaan.
6 Double Pica (two Small Picas)	Gros Paragon (une Philosophie et un Petit Romain) ...	Text, or Secunda. ...	Dubbelde Dessendiaan.
7 Paragon (two Long Primers)	Petit Paragon (deux Petits Romains et un Petit Texte)...	Paragon	Paragon.
8 Great Primer (two Bourgeois)	Gros Romain (un Petit Romain et un Petit Texte) ...	Tertia	Text.
	Gros Texte (deux Petits Textes)		
9 English (two Minions) ...	Saint Augustin, (un Petit Texte et une Nompareille) ..	Mittel	Augustyn.
10 Pica (two Nonpareil) ...	Cicero (deux Nompareilles)	Cicero	Mediaan.
11 Small Pica (two Ruby) ...	Philosophie (une Mignone et une Parisienne)	Brevier, or Rheinlænder	Dessendiaan.
12 Long Primer (two Pearl) ...	Petit Romain (une Nompareille et une Parisienne) ...	Corpus, or Garmond ...	Garmond.
13 Bourgeois (two Diamond) ...	Gaillarde (deux Parisiennes)	... ...	Burgeois.
14 Brevier	Petit Texte	Petit, or Jungfer ...	Brevier.
15 Minion (Half English) ...	Mignonne	Colonel	
16 Nonpareil (Half Pica) ...	Nompareille	Nompareille	Nompareil.
17 Ruby (Half Small Pica)			
18 Pearl (Half Long Primer) ...	Parisienne, ou Sedanoise	Perl.	
19 Diamond (Half Bourgeois)			

SPECIMENS OF THE VARIOUS SIZES OF TYPE.

French Canon.

Two line Double Pica.

Two line Great Primer.

Two line English.

Two line Pica.

Double Pica.

Paragon.

French Canon, is confessed to have been first produced by some artizan of that nation, and employed in some work relating to the canons of the church; to which the German title, *Missal,* likewise alludes. The sizes marked 2, 3, 4, 5, 6,

have their names from the respective bodies, of which the depth of two m-quadrats answers to one of the double sizes, only that Double Pica is, in fact, two lines of Small Pica. Paragon is the only letter that has preserved its name, being called so by all the printing nations. Its appellation shows that it was first cut in France, and at the same time gives us room to suppose that the state of well-shaped letter there was at that time but indifferent; because, when Paragon happened to turn out a letter of better shape than the rest, it received the name of *perfect pattern*, which the word paragon implies.

Great Primer is called *tertia* in Germany, and is, therefore, one of the major sizes of letter which, in the infancy of the art, served for printing several works of consideration, and particularly the Bible; on which account it is by some called Bible Text.

English is called *mittel* by the Germans, and *St. Augustin* by the French and Dutch; both which names might be productive of considerable argument; the word *mittel* bearing the same meaning with *middle*, tells us that the former sizes of letter were seven in number, of which English was the centre, having *prima*, *secunda*, and *tertia*, on one side, and *Pica*, *Long Primer*, and *Brevier*, on the other. As to the name of *St. Augustin*, which the French and Dutch give it, it leads us to suppose that the writings of that father were the first work which was done in letter of that size.

Pica is another letter that admits of having particular notice taken of it, on account of its being called *Cicero* by the French and Germans; for as the preceding size was distinguished by the name of *St. Augustin*, so has this been honoured with that of *Cicero*, on account of the Epistles of that writer having been first done in letter

of this size, in which we are not left to mere conjecture, but have tradition on our side; for in the year 1704 it was asserted by a compositor, then upwards of seventy years of age, whose authority, though allowed to rest on hearsay evidence, deserves notice, when we consider the early period the assertion was made, and that no contradiction has prevented its belief, as well as the probable reason why founts should be named after the works for which they were first used; therefore, we have only to trace this relation two or three lives back, and we shall be brought to the time when it was considered an undoubted fact. This point ascertained, why the *Pica* body acquired the name of *Cicero*, it may open a fair field for conjecture on most of the other disputed bodies, and may enable those who feel interested in the controversy to decide whether the Germans or the French were the first who dedicated the letter of this body to the name of *Cicero* on the before-mentioned account.

Small Pica, thus named from its inferiority to *Pica*. But in France they assign the invention of this body of letter to *Philosophie;* for which, indeed, they may have their reason, considering that their *Cicero* and *Philosophie* are of one and the same face; from which we conclude that *Small Pica* has not been thought there worth cutting with a face proportionable to its body, and that the cramping of *Cicero* to *Philosophie* was done with no other view than to get in upon the former. This we venture to suggest, though we can form no ideas why the Germans give this letter the name of *Brevier*.

Long Primer. Upon the same supposition that some bodies of letter took their names from works on which they were first employed, we are induced to believe that the Germans gave the name of *Corpus* to this character, on account of their Corpus Juris being first done in this size, as it is still continued in that letter; but whether *Garmond* is the name of the author, or what signification else it bears, we have no items of. In contradistinction of the French *Gros Romain* they call this sized letter *Petit Romain*, conformable to the distinction that is made between *Great Primer* and *Long Primer* in England. The effect of leading, or distances between the lines of this body may be seen in the poem in the last section.

Bourgeois, by its name, seems to have first come from France. *Gaillarde* is a letter of the same body, but has the face of *Petit Romain*. Two Bourgeois are equal to a Great Primer. This type has been freely used in the previous part of this work, see the Patents, Charters, Biography, &c. but having a distance between the lines, this paragraph only can give a just idea of its real body.

Brevier had its name from being first used for the Breviaries, or Roman Catholic church books, which are commonly printed in this character. It is also called *Petit* and *Jungfer* (or maiden letter) by the Germans, on account of its comeliness.

Minion is a body one half of English, chiefly in use for newspapers, seldom for book work.

Nonpareil. At the introduction of this type it was, of course, without a peer in comparative size to the larger type; and, I think, still retains its character; for every smaller type is below the compass that any eye of medium sight is able to read without pain. Its body is exactly half Pica. The emulation to obtain much matter in small compass has induced the cutting of two or three grades smaller, the beauty and value of which may have produced their denominations.

Ruby (half Small Pica) must be first named of these, although the last introduced. It was, in fact, originally a Nonpareil with short ascenders and descenders, cast on a smaller body, or sometimes a pearl, on a larger, to look open; but now some founders have a distinct specimen for this size. This name has but very lately been adopted in the type-founders' specimens, but some years ago it was found, by the writer of this, absolutely necessary to give some distinguishing appellation to this size, as the letter-founders had given him one-nick pearls of two bodies, viz. one fount half Small Pica, another half Long Primer; the mistakes arising from this circumstance in a house much in the habit of using small type, occasioned the expedient of inventing a new name, and as the neighbouring sizes were called Pearl and Diamond, it seemed not very inapplicable to take the name of Ruby.

Pearl was the size cut next to Nonpareil. Its regular body is half Long Primer. Although it has been sometimes superseded by Ruby before-mentioned, yet for Pocket Dictionaries, Pocket Bibles, Prayer Books, &c. for those who have strong sight its use is admirable.

Diamond. But as new inventions are usually carried to extremes, so type-cutting has been carried to a degree of eye-straining minuteness that very nearly approaches to astonishment in those who are at all acquainted with the various processes which each separate type has to pass through before its impression gets upon paper. In the type now trying the reader's eye, so minute is each separate character which has to be cut upon a steel punch, struck into a matrix, cast in a mould, rubbed and dressed by the founder, lifted into his stick, and justified with thousands of others into a page by the compositor, that, of the lower-case i about 2,800 go to a single pound, and the thinnest space about 5,000! Dictionaries, Bibles, Prayers, are now not merely pocket size, but may be hid in a glove, or lost in a lady's reticule: the body is half a Bourgeois, and was thought, at one time, to be the *ne plus ultra* of small type, but Mr. Henri Didot's smallest fount is less than the English Diamond, being half of a Nonpareil. Mr. Bessimer, who cut the Caslon Diamond is now engaged upon a smaller fount, to rival Didot's. I believe the Dutch were the first to cut and cast Diamond in Europe, and Mr. Fry the first in England.

The French type, as shown in the specimen of Messrs. Didot, of 1822, does not agree in names and sizes with those in the Table just exhibited. They give *Cinq ou Parisienne,* which agrees with our Nonpareil,—*Six Romain, ou Nompareille,* rather less than Brevier,—*Sept ou Mignonne,* equal to Bourgeois,—*Sept et Demi Corps Huit;* and *Huit ou Gaillarde,* agree with our Long Primer, the former having a smaller face than the latter,—*Neuf ou Petit Romain,* very near our Small Pica,—*Dix ou Philosophie,* larger than Small Pica, but not equal to Pica,—*Dix et Demi Corps Onze* and *Onze ou Cicero,* our English,—*Quatorze ou Gros Texte,* nearly Great Primer. But these comparisons must be subject to the proviso that the specimen does not deceive me by being leaded, in order to give an open appearance to the type.

It does not appear that French type has any advantage to offer on account of price that would be an inducement to its importation into England. The size equal to our Nonpareil is 12 fr. or 10*s.* per lb.—that nearest our Brevier 6 fr. or 5*s.*—Bourgeois, 3 fr. 80 c. or 3*s.* 2*d.*—Long Primer, 3 fr. 30 c. and 2 fr. 70 c. equal to 2*s.* 9*d.* and 2*s.* 3*d.*—Small Pica, 2 fr. 30 c. or 1*s.* 11*d.*—Pica, 2 fr. or 1*s.* 8*d.*—English, 1 fr. 95 c. and 1 fr. 90 c. equal to 1*s.* 7½*d.* and 1*s.* 7*d.*—Great Primer, 1 fr. 75 c. or 1*s.* 5½*d.* And, on the score of beauty, the worst pretender to the art of letter-founding in this country needs never light a furnace again were he to show such

disproportionate cutting, such miserable lining, and such despicable casting as is exhibited in both the Roman and Italic of the French school. Their Greek, German, and Russian is good; and in those founts which may be called *fancy*, they are superior to anything we can exhibit. The Gothique, Batarde, Coulée, and Ronde of Messrs. Didot are master-pieces of fancy. Due credit has been already given to their *Scripts*, which they call *Anglaise:* but I have not seen any in the French specimens so minute as Caslon's *English;* and I think he has fully equalled them in his *Double Pica* and *Four-line Pica*. Messrs. Didot have extra-large sizes of this kind, even up to *Eleven* or *Twelve-line Pica*, as also of the *Ronde*, which are elegant, beyond the conception of those who have not seen them. They are upon the French principle of never joining in the finer lines, or as boys say in writing their copies, in the *up-strokes*. The prices are rather high; the larger size mentioned above being 3 fr. 75 c. equal 3*s*. 1½*d*. per lb. The ornamented capitals equal in freedom those of copper-plate.

To recapitulate the different sizes of types in England, the list will stand thus, premising that, above the size of Canon, all letter is cast to the depth of so many pica m's; as Five-line Pica, Six-line Pica, &c. up to any size requisite.

1. Canon.
2. Two-line Double Pica.
3. Two-line Great Primer.
4. Two-line English.
5. Two-line Pica.
6. Double Pica.
7. Paragon.
8. Great Primer.
9. English.
10. Pica.
11. Small Pica.
12. Long Primer.
13. Bourgeois.
14. Brevier.
15. Minion.
16. Nonpareil.
17. Ruby.
18. Pearl.
19. Diamond.

Paragon, Small Pica, Bourgeois, and Minion, were formerly termed irregular bodies, from their being intermediate sizes between the regular gradation, and were seldom introduced by the printer, from the apprehension he entertained that his office might be thrown into confusion in consequence of the slight difference which

existed in those founts and others, in point of size. This difficulty disappeared as printing improved; for now Small Pica and Bourgeois are more generally used than any other letter, except Pica, which is considered the standard size, as all leads are cast, and measures made to its m's. Its face is neither too small for the eye, nor its size too large, so as to extend a work unnecessarily. Minion is a letter become almost useless, except for newspapers, it being so nearly allied to Brevier, a much neater type. Nonpareil and Pearl have lately been much employed in miniature editions of some of our standard works, dictionaries, and other books of reference, where it is desirable to have *multum in parvo*. They are introduced with much propriety and beauty in notes, quotations, arguments, &c. instead of Brevier, to a Bourgeois body. Diamond is now getting much in use for small and elegant, and it may be added, expensive, editions of the Bible, Testament, Prayer-book, &c. There are likewise various other sizes cast for titles and job-work, which appear in the different specimens of type-founders.

The Double Pica may, with the greatest propriety, be termed an irregular letter, from its lining with two Small Picas. From what cause it acquired its present name will be difficult to say, unless it was originally cast to two lines of Pica, and being judged too small a face for that size, was reduced to two lines of Small Pica.

Though all founders agree in one point, that is, in casting letter to certain named bodies, yet, in casting each body they very materially differ. This pernicious deviation, which was formerly so general among the founders, originated, most probably, in the want of some generally-understood standard, and has been persisted in, it is said, by some printers, from a love of singularity, and a desire to avoid the inconvenience of lending sorts, and who, therefore, still order their founts to be cast on an irregular body. At present, however, much greater uniformity prevails, and the respectable letter-founders, unless they have orders to the contrary, invariably cast their founts to a standard, which we shall insert, and which will be found to correspond in most respects with that of Mr. Moxon.

In offices which have two or more founts of each particular sized letter, cast by different founders, it often occurs that a sort may be deficient in one, of which there is a superfluity in the other; but, from

their different face, &c.* cannot be used together; in this case not only an expense is incurred, but a delay occasioned to the work, from the time it necessarily takes to cast imperfections. This is not the only inconvenience; in the best regulated offices it is impossible to prevent founts from being mixed, which occasions loss of time to the Compositor, who, if he be a careless man, will not take the trouble to put the sorts in their proper places when marked in his proof, but will give them, in revenge, the *coup de grace* on the chase or stone, and commit them to the old-metal shoe, rather than convey them to their proper cases.

Another, and very considerable fault, may be alleged against the founders, who seem to neglect, in their zeal to produce beautiful specimens, that exactness as to the body of their types which is so essentially necessary. It is not unusual to find, that if a row of capitals or figures is run down the side of the same number of lines of the type, a considerable variation will appear between the one and the other. This is particularly fatal to table-work, as it entirely prevents that accuracy so requisite in justification. But there is much to be alleged in extenuation even of this fault: it would be impossible to get through the casting of any fount of considerable weight with one mould only; and if two or more are made, when we consider that the variation of the finest hair in the capacity of any one of them from the body of the type, will ruin the fount in this respect, it ought rather to be matter of admiration that they are so near perfection. The second mould is usually reserved for the upper-case sorts. Even if these apparatus are complete, a change of the dresser of the fount, or, if confined to one, the chance of his hand bearing sometimes heavier or lighter upon his scraping knife, will still produce a great variation.

The size for each body of letter was in some measure fixed

* In one office I knew of eight founts of Pica, which bore the following proportions to a foot measure:—

No. 6, Pica	71¼
7	71⅛
8	70¾
9	71⅛
10	71
11	71½
12	71½
13	71¼

by our former letter-founders, otherwise the ingenious author of Mechanic Exercises would not have given us a table of the sizes of letter in his time, without reservation.* In order to see the difference between the depth of letter in Mr. Moxon's time, and that which is cast at present, we shall insert this author's table of sizes, in which he has carried the number of m's, or (which amounts to the same thing) lines of matter of each body of letter, to the length of 12 inches; which measurement we shall observe in our counter-table, to compare with Mr. Moxon's.

Pearl	184 in a foot.
Nonpareil . . .	150
Brevier	112
Long Primer . . .	92
Pica	75
English	66
Great Primer . . .	50
Double Pica . . .	38
Two-line English . .	33
French Canon . . .	17½

These are all the bodies of letter noticed by the above author, from which it appears that, in his time, Printers were not encumbered with so many different founts as at present.† We have eight sorts of letter more than are mentioned in the preceding table, which, if they had then existed, Mr. Moxon would not have failed to mention, as he does Small Pica, concerning which he says, "We have one body more, which is sometimes used in England, that is, a Small Pica; but I account it no discretion in a Master Printer to provide it, because it differs so little from the Pica, that, unless the workmen be carefuller than they some-

* Moxon says only this, "And that the reader may the better understand the sizes of their several bodies, I shall give him this table following, wherein is set down the number of each body that is contained in one foot."

† Minsheu's Dictionary, 1617, in eleven languages, had no more than five sorts of characters to represent them; viz. English, Saxon, Hebrew, Greek, and Latin (of both faces), and a smaller English, to represent the Dutch and the Cognate languages; in which character also the British is printed. There is no Syriac, that is printed in Hebrew characters; and the Arabic is printed in Italic.—*Mores*, p. 9.

times are, it may be mingled with the Pica, and so the beauty of both may be spoiled." Hence we may gather former opinions on irregular-bodied letter, the only one, Small Pica, being considered unworthy a place in the table of founts. Yet so changeable is taste with the times, that those founts termed irregular are now more regularly in use than the others.

We shall compare the depth of the eight additional sorts of letter, proportionable to the sizes in the foregoing table, and then give the sizes of all the bodies of letter which are now extant.

Diamond, two lines of which will answer to the depth of one Bourgeois, and two Bourgeois to one Great Primer, would have required, according to Mr. Moxon, 200 m's, or lines, to the length of one foot.

Minion, which has English for its two-line letter, would have required 132 m's.

Bourgeois, which has Great Primer for its two-line letter, would have required 100 m's.

Small Pica	76
Paragon	46
Two-line Pica . . .	37½
Two-line Great Primer . .	25
Two-line Double Pica . .	19

Thus would the sizes of these sorts of letter have run, had they been cast about a century ago. Having reduced them to the standard which they held at that time, the following counter-table of the present sizes of letter, as cast in Caslon and Livermore's foundry, with the number of m's contained in a foot, will show how far our present sizes of letter differ from the former:—

Canon	18 and a Great Primer.
Two-line Double Pica .	20¾
Two-line Great Primer .	25½
Two-line English . .	32
Two-line Pica . . .	35
Double Pica . . .	41½
Paragon	44½
Great Primer . . .	51¼

English	64
Pica	71½
Small Pica . . .	83
Long Primer . . .	89
Bourgeois	102¼
Brevier	112½
Minion	128
Nonpareil	143
Pearl	178
Diamond	205

The foregoing table is the standard by which the body of each letter should be regulated;* and those who have deviated from it

* It has been proposed by one of our profession to adopt a fixed standard for all founts by means of the foot measure, and to take one particular size of type as the *radix;* as the idea is ingenious, and would effectually remedy every inconvenience, I shall give his own words: only one thing more would be necessary to render the idea effectual, namely, the omnipotence of an act of parliament to command the melting down and re-casting every type in the kingdom.

"To Printers and Letter-Founders.—There is a trite saying, that 'what is every body's business is nobody's,' which we hear frequently made use of when some glaring impropriety or evil is adverted to, the continuance of which is not attempted to be justified, but is passed over with indifference. When, however, a considerable number of persons, embarked in similar pursuits, are equally exposed to inconveniences by a practice which is injurious to them, and yet unjustifiable in itself, it becomes the duty of such persons to endeavour to apply a remedy. Upon this principle, I consider that Printers have a fair right to interfere with the letter-founding business, and to insist upon the suppression of an evil which 'has increased, is increasing, 'and ought to be diminished,' or rather exterminated. I allude to the difference in the size of the bodies of founts called by the same name, and also to the difference in their heights to paper—circumstances, particularly the latter, which are greatly detrimental to Printers; for when founts are intermixed, those which are highest to paper must inevitably be injured by planing over, and by constantly sustaining a harder pull at press. Besides, all attempts at beautiful printing can only partially succeed, so long as founts are cast to different heights; an unequal surface compelling the use of more cloth in the tympan than would be required, were the surface of the types quite uniform. Why should this obstacle be permitted to operate as a barrier against the wishes of the admirers of beautiful printing? Ought not Letter-founders and Printers rather to co-operate in a determination to remove such obstacle? Doubtless, it has not been adopted through design, nor is it per-

have little room to boast of their improvement in the art of printing. On the contrary, they have brought on it numerous evils, the reformation of which would be found equally beneficial to the founder and printer. The current founts might always be kept as stock, and thus ready when applied for—and the inconvenience of waiting for imperfections at a time, perhaps, when urgently wanted, would be obviated. Another advantage would result, in the sale of a printing-office; as whatever type might be purchased, there would be no apprehension of its not standing

sisted in through a sinister motive on the part of Letter-founders, although it is evidently favourable to their business, by causing a quicker wear of types than ought in fairness to take place. It owes its introduction and continuance to the want of some scientific and easily understood *principle* upon which the Letter-founding business ought to be grounded, which not having been hitherto agreed upon and reduced to practice, has necessarily left each Letter-founder to pursue his own ideas, independent of those of his cotemporaries, but as Letter-founders, individually, have of late years done themselves so much credit by the taste they have shown in making new types, it is scarcely to be doubted that they will undertake the temporary burthen of altering their moulds, if an obvious principle of permanency be laid down for their practice, and if that principle bring with it such advantages to Printers as to induce them to urge its adoption. Having these reasons to found upon, I propose that henceforth founts shall be cast so as to be commensurate with each other; and, to effect this, it will only be necessary to adhere to the following

"PLAIN AND ACCURATE RULES

"*For obtaining Permanent Uniformity in the Sizes of the Bodies of Types, and in their Height to Paper.*

"1. Let the fount called Nonpareil be made the fundamental standard, and make 12 lines of Nonpareil measure exactly one inch.—2. Let 14 lines of Nonpareil be the common measure for all other founts; this measure to take in 5 lines of Great Primer, 6 of English, 7 of Pica, 8 of Small Pica, 9 of Long Primer, 10 of Bourgeois, 11 of Brevier, and 12 of Minion.—3. Let 11 lines of Nonpareil be the standard height to paper.

"A conformity with these three rules would evidently prove a great benefit Printers, and might ultimately not be less so to Letter-founders. If adopted, the bodies of English, Pica, and Small Pica will be a little enlarged; Long Primer and Brevier a little diminished.

"The standard foot measure kept at the Royal Society should be made use of for obtaining an accurate inch to proceed upon. I shall be glad to find these hints taken into due consideration; and, unless some strong objection be stated, I trust they will be readily adopted.

"JAMES FERGUSSON."

with any other fount of the same kind which the purchaser may have previously procured.

It is highly probable that the different sorts of irregular-bodied letters owe their existence to accident. A letter may have been cut, the face of which happened to prove too large for one, and too small for another, of the regular-bodied sizes; and, therefore, the expedient was used of making it an intermediate body; as, for instance, Paragon, which turning out a handsome letter, was no doubt recommended as an improvement, and eagerly adopted.

In this country, moulds have been particularly cut for each of those irregular bodies. In France, their *la Philosophie,* or Small Pica, is cast in the *Cicero,* or Pica matrices; their *Gaillarde,* or Bourgeois, in those of Long Primer; and their *Mignone,* or Minion in those of Brevier; so that the cutting of punches for three sorts of regular-bodied letter, serves there for as many of irregular body. This plan was attempted by Mr. Jalleson, a letter-founder from Germany, who lived in the Old Bailey, where he printed the greatest part of an Hebrew bible with letter of his own casting, but was, by adverse fortune, obliged to finish the work in Holland. He had three sets of punches to cast six different bodies of letter—Brevier and Long Primer from one set—Pica and English from another—Great Primer and Double Pica from a third. He accordingly charged his Brevier, Pica, and Great Primer with as full a face as their respective bodies would admit of; and, in order to make some alterations in the advancing founts, he designed to cut the ascending and descending letters to such a length as should show the extent of their different bodies. But though he had cast founts of the three minor sorts of letter, he did not bring the rest to perfection.

OF A FOUNT OF LETTER.

A FOUNT of letter consists of the following sorts;

1. Capitals, A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, Æ, Œ; and the same in *Italic.*

2. Small Capitals; the same in Italic in some founts, chiefly the Scotch.

3. Lower case, a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z, &c.; the same in Italic.

In old founts will be found the long f, now neither cut nor cast, except by special order.—Also some double letters depending on the f as fi, fl, ffl; also the ct.

4. Figures, 1, 2, 3, 4, 5, 6, 7, 8, 9, 0; I have seen instances of Italic figures.

5. Points, , ; : . ? ! - ' [ ] ( ) * † ‡ § ‖ ¶; also Italic *; : ? ! ( )*.

6. Four sorts of spaces.

7. M and n quadrats.

8. Three sorts of large quadrats, two, three, and four m's.

9. Accents.

These are the ordinary sorts cast to a fount of letter, and which the founders class into short, long, ascending, descending, and kerned letters.

Ascending letters are all the Roman and Italic capitals; in the lower case, b, d, f, h, i, k, l, t.

Descending letters are g, j, p, q, y, in Roman and Italic. Ascending letters, in founts of the *old cut*, when they happen to stand under descending letters, are liable to be damaged; to prevent which the compositor should vary his spaces.

Kerned letters are such as have part of their face hanging over either on one or both sides of their square metal or shank. In the Roman, f and j, are the only kerned letters; but in the Italic, *d, g, j, l, y,* are kerned on one side, and *f* on both sides of their face.

Their beaks being liable to accident, especially the Roman f, when at the end of a line, they should be cast in a larger proportion than might otherwise be necessary; and more particularly the Italic *f*.

Some Italic capitals are kerned on one side of their face; but none ought to be more attended to than *A, T, V, W,* that their angles may not fall upon an ascending letter that may stand next to them.

These are the classes into which letter-founders divide the sorts of a fount, without including accented letters.

Of Double Letters.

Double letters were originally formed for the convenience of one kerned letter joining with another, as in the instance of a ff, ffi, fi, ſt, &c. as their beaks would inevitably receive damage by bearing against each other; though this is a reason that will not apply to the ct, which are cast together with an ornament to connect them.

Of the number formerly used few now remain, and those permitted only through necessity, as the fi, ff, fl, ffi, and ffl. The introduction of the round s, instead of the long, is an improvement in the art of printing for which we are indebted to the ingenious Mr. Bell, who introduced them in his edition of the British Theatre. They are now generally adopted, and the founders scarcely ever cast a long f to their founts, unless particularly ordered. Indeed, they omit it altogether in their specimens, wisely judging that the fewer ascending or descending letters are introduced, the more their types show to advantage. They are mentioned here not to recommend them, but that we may not be subject to blame from those of the old school, who are tenacious of custom, however antiquated, for giving a list which they might term imperfect.

Lord Stanhope, among his other improvements in printing, of which we shall have occasion to speak hereafter, formed a scale for casting a fount of letter, differing completely from those of the regular founders. He abolishes altogether the double letters now in use, which he effects by cramping the beak of the f in such a manner as to permit any ascending letter to stand next to it. The reason of this was, not as being any improvement in the appearance of the letters; but because, in stereotyping, it was found difficult to take the mould perfect, if the plaster got below the beak. He proposes also the introduction of a number of additional ligatures in the words of frequent recurrence, which, it is asserted, will save much time to the compositor. See the scheme of Stanhope Cases hereafter.

Judging from former times, when ligatures, such as fi, ra, ta, as, is, us, &c. were used, and abolished because they *encumbered* the compositor, who, so far from thinking they expedited him in his work, took every opportunity of committing them to the old-metal

box, we much fear the Stanhopian introduction of, an, in, of, &c., will not be found to meet with a much more favourable reception.

From every consideration of advantage to a master printer, I would advise the dispensing with every sort but what is really necessary, and for this (though not the only) reason—they cannot avoid having, at times, men in their employ who are careless in their business. The greater the number of spare boxes in a case, the more receptacles there are for pie: experience proves this daily; and were those boxes, formerly used for double letters, reduced into the general size of the case, those dépôts would be destroyed which contain, as all pie generally does, the most useful sorts—and the case would be enlarged, and rendered less complex to the learner.

The wear and tear, likewise, of a fount of letter with such a number of heavy sorts will be more considerable, as the damaging of one letter is the destruction of two. With pleasure we allow our tribute of praise to his lordship for the attention he has paid to the improvement of the printing business, and sincerely hope his plan will be followed of abolishing those double letters that were attached to the f, though we wish it could have been carried into effect without encroaching so much on the beauty of the letter itself.

Of the Number of each Sort cast to a "Bill," Roman and Italic.

This part of our work would be extended beyond its due proportion, were we to enter into the minutiæ of the different sorts requisite to form a complete fount for every language printed in the Roman character; we shall, therefore, confine ourselves to the improved scale of the present day, calculated for our own language, to which supplements, by the founders called *imperfections*, may be afterwards cast, so as to render the fount serviceable for any other. The Latin and French require more of c, i, l, m, p, q, s, u, and v, than the English; but until such sorts become really necessary, it would be useless to cast them. When a work is completed for which such sorts were serviceable, it may then be proper, to prevent their remaining inactive, to cast up to them—by which means

the fount will receive considerable increase when employed again in the English language.

A perfect scale is of the greatest importance and utility, as it does away the necessity, in a great measure, of casting imperfections, which too often differ from the original fount, either in thickness, in height, in depth, or in lining, even when cast in moulds of the same body. This is a serious evil, and particularly destructive to a fount of letter. It reflects discredit not only on the founder, but the printer, in the opinion of those unacquainted with the art, who consider every defect as an error of the press. A careful compositor has it in his power to detect those defects; but when it is considered that such discovery will, perhaps, retard him in the pursuit of his business, it cannot be a matter of much surprise, that he should often permit them to pass without observation. It should be an invariable rule with master printers to examine imperfections before they go into the hands of the compositor, that by timely precaution they may prevent not only the injury of their founts, but the destruction of that symmetry in the lining of the letter, so essential to the beauty of printing. Good press-work will immediately exhibit the most trivial defect in this respect.*

* The system of hurrying works through the press, lately adopted by some booksellers, by dividing them among a variety of houses, is destructive of uniformity. In some instances, it must be allowed that expedition is absolutely necessary; but care should be taken that the founts completely correspond. It is not unusual to discover, in volumes so divided, one to contain more lines in a page than another; or, even if the number of lines are the same, the page differs in length; or, should the type agree in depth, it is very probable that it varies in thickness; and still more probable that it varies in the quantity of work it has done;—all which produce a glaring want of that uniformity which constitutes the beauty of the typographic art. But still more to be deprecated is the division of a single volume: an instance occurred some years since of a work so divided (a prayer book) where the first part was printed with long *f*'s, and the last part with round, besides other deviations. The plea of expedition can scarcely justify the inconvenience arising from this injudicious practice: and in the far greater number of instances that have come under my observation, this has neither been the true reason nor the effect produced. The gratifying the various partners in a large work, and the fear that a printer should have too good a job, seem to have been the real motives for dividing a work into various houses, for the instances in the present times must be very rare, in which any one master-printer of respecta-

Letter-founders call 3,000 lower case m's a bill, and proportion all other sorts by them; so that a whole bill of pica makes 500 lbs.—1,500 m's, or half a bill, 250 lbs.

Formerly a fount of letter, weighing 500 lbs. was considered a good-sized fount; but now, so much more matter is crowded into a sheet, and so many more hands put upon a work, in order to carry it through the office with the celerity required, that double that weight barely acquires the appellation. I shall, however, give what is reckoned by the founders a regular bill—perfect in all its sorts—for though some founts have neither small capitals, accented letters, nor Italic, yet so rarely is a fount of the present day ordered without them, that we rather leave it to the option of the printer to omit them in this scale on giving his order, should he be so inclined, and proportion their weight to the other sorts, than not to present the bill in as complete a form as possible.

bility, could not execute in his own house a work which, from its magnitude, should be worthy of adequate preparations, in as short a time as though it were divided among more houses. Besides obviating the inconveniences above stated, this mode would offer many advantages in its progress, both as it respects the convenience of the author or editor, and the uniformity of appearance; so that, even on the score of interest, the contrary practice is not adviseable. I may add, that I have never known an instance of any divided works in which I have been concerned, where the cost has not been more to the employers than if the price had been fixed by one house only.

*A Bill of Pica Roman, and Half a Bill of Italic, weighing 800 lbs.**

ROMAN.

a	8500	ff	400	,	4500	A	600	A	300
b	1600	fi	500	;	800	B	400	B	200
c	3000	fl	200	:	600	C	500	C	250
d	4400	ffl	100	.	2000	D	500	D	250
e	12000	ffi	150	-	1000	E	600	E	300
f	2500	æ	100	?	200	F	400	F	200
g	1700	œ	60	!	150	G	400	G	200
h	6400			’	700	H	400	H	200
i	8000		1510	*	100	I	800	I	400
j	400			†	100	J	300	J	150
k	800	à	200	‡	100	K	300	K	150
l	4000	è	100	‖	100	L	500	L	250
m	3000	ì	100	§	100	M	400	M	200
n	8000	ò	100	¶	60	N	400	N	200
o	8000	ù	100	[	150	O	400	O	200
p	1700	á	100	(	300	P	400	P	200
q	500	é	250			Q	180	Q	90
r	6200	í	100		10960	R	400	R	200
s	8000	ó	100			S	500	S	250
t	9000	ú	100	1	1300	T	650	T	326
u	3400	â	200	2	1200	U	300	U	150
v	1200	ê	200	3	1100	V	300	V	150
w	2000	î	100	4	1000	W	400	W	200
x	400	ô	100	5	1000	X	180	X	90
y	2000	û	100	6	1000	Y	300	Y	150
z	200	ä	100	7	1000	Z	80	Z	40
&	200	ë	100	8	1000	Æ	40	Æ	20
		ï	100	9	1000	Œ	30	Œ	15
	107100	ö	100	0	1300				
		ü	100				10660		5331
		ç	100		10900				
			2550						

* This bill does not include quadrats, which may be calculated at 80 lbs different sizes.

ITALIC.

a	1700	*ff*	80	*á*	20	*A*	120		
b	320	*fi*	100	*é*	50	*B*	80	*Spaces.*	
c	600	*fl*	40	*í*	20	*C*	100		
d	880	*ffl*	20	*ó*	20	*D*	100	Thick	18000
e	2400	*ffi*	30	*ú*	20	*E*	120	Mid.	12000
f	500	*æ*	20	*à*	20	*F*	80	Thin	8000
g	340	*œ*	12	*è*	20	*G*	80	Hair	3000
h	1280			*ì*	20	*H*	80	m Quads.	2500
i	1600		302	*ò*	20	*I*	160	n Quads.	5000
j	80			*ù*	20	*J*	60		
k	160	;	160	*â*	40	*K*	60		48500
l	800	:	120	*ê*	40	*L*	100		
m	600	?	40	*î*	20	*M*	80		
n	1600	!	30	*ô*	20	*N*	80		
o	1600	(	60	*û*	20	*O*	80		
p	340			*ä*	20	*P*	80		
q	100		410	*ë*	20	*Q*	36		
r	1240			*ï*	20	*R*	80		
s	1600			*ö*	20	*S*	100		
t	1800			*ü*	20	*T*	130		
u	680					*U*	60		
v	240				470	*V*	60		
w	400					*W*	80		
x	80					*X*	36		
y	400					*Y*	60		
z	40					*Z*	16		
&	40					*Æ*	8		
						Œ	6		
	21420						2132		

Canon 20-m Bill.

It may also be useful to know the usual proportions cast in a fount of large-sized type for Job Work.

a	40	fi	6	,	30	A	14		
b	14	ff	6	;	16	B	10	*Spaces.*	
c	20	fl	4	:	14	C	10		
d	24	ffl	3	.	24	D	10	Thick	120
e	60	ffi	4	-	16	E	14	Midd.	80
f	20	æ	3	?	6	F	10	Thin	60
g	16	œ	2	!	6	G	10	Hair	30
h	30			’	16	H	10	m Qds.	20
i	40			*	3	I	14	n Qds.	40
j	10			†	3	J	8		
k	10			‡	3	K	8		
l	24			§	3	L	10		
m	20			‖	3	M	10		
n	40			¶		N	10		
o	40			(	6	O	10		
p	15			[	4	P	10		
q	8					Q	6		
r	30					R	10		
s	40					S	12		
t	40			1	12	T	14		
u	20			2	10	U	8		
v	12			3	10	V	8		
w	14			4	10	W	10		
x	8			5	10	X	6		
y	14			6	10	Y	8		
z	4			7	10	Z	4		
&	4			8	10	Æ	3		
				9	10	Œ	2		
				0	12				

A SYNOPSIS of the several Matrices, for Languages requiring peculiar Characters, in the British Letter Founderies. Referred to in p. 344.

CHARACTER.	BODY.	Caslon.	Fry.	Figgins.	Thorowgood late Thorne.	Oxford 4to University.	Wilson, Glasgow.
Arabic[A]	Great Primer		Fr.[7]				
	English	C	Fr.[8]			Oxf.	
Armenian	English					Oxf.	
	Pica	C					
Coptic	English					Oxf.	
	Pica	C[1]					
Domesday	Pica			V. F.			
	Small Pica			V. F.			
Engrossing	Two-line-English		Fr.		Th.		
Ethiopic	English		Fr.			Oxf.	
	Pica	C	Fr.[9]				
Etruscan	Pica	C[2]					
German	Great Primer				Th.[35]		
	Pica	C					
	Long Primer	C	Fr.				
	Brevier	C					
	(Petit)				Th.[36]		
	Nonpareil				Th.[37]		
Do. Text, ornamented	Five-line-Pica			V. F.			
Greek	Double Pica	C[3]	Fr.			Oxf.	W.[41]
	Great Primer	C[4]	Fr.[10]	V. F.		Oxf.	W.
	English	C	Fr.	V. F.		Oxf.	W.
	Pica	C	Fr.	V. F.	Th.	Oxf.	W.
	Small Pica	C	Fr.	V. F.			W.
	Long Primer	C	Fr.[11]	V. F.		Oxf.	W.[42]
	Bourgeois	C			Th.		
	Brevier	C	Fr.	V. F.		Oxf.	W.
	Nonpareil	C	Fr.				W.
	Pearl	C	Fr.[12]				
	Diamond	C					
Alexandrian	Pica		Fr.[13]				
Gothic	Pica	C				Oxf.	
Hebrew	Two-line-Gr. Pr.	C	Fr.			Oxf.	
	Do. with points		Fr.				
	Two-line-English	C	Fr.				W.
	Do. with points		Fr.				
	Double Pica	C	Fr.				W.
	Do. with points		Fr.				

SYNOPSIS (continued.)

CHARACTER.	BODY.	Caslon.	Fry.	Figgins.	Thorowgood late Thorne.	Oxford & University.	Wilson, Glasgow.
Hebrew	Great Primer	C					W.
	Do. with points	C					
	English	C	Fr.[14]		Th.	Oxf.	W.
	Do. with points	C	Fr.	V. F.			
	Pica	C	Fr.	V. F.			W.
	Do. with points	C					
	Small Pica	C	Fr.[15]	V. F.			W.
	Do. with points			V. F.[28]			
	Long Primer	C	Fr.[16]	V. F.		Oxf.	W.
	Bourgeois	C	Fr.				
	Brevier	C	Fr.[17]				W.
	Minion						W.
	Nonpareil			V. F.			W.
Do. Rabbinical	Small Pica		Fr.[18]				
	Brevier		Fr.[19]				
	Nonpareil		Fr.[20]				
Hibernian, or Irish	Pica		Fr.[21]				
	Small Pica		Fr.[22]	V. F.			
Malabaric	English		Fr.[23]			Oxf.	
	Pica		Fr.				
Malayan, Persic (see Arabic)							
Persian or Talik	English	C					
	Paragon			V. F.[29]			
Philosophical (Dr. Wilkins)			Fr.				
Runic	Pica					Oxf.	
Russian	Double Pica		Fr.				
Russian,[B] *ancient, or Sclavonian.*	Pica				Th.		
	Bourgeois				Th.		
Russian-cursiv (generally in use)	Pica				Th.[38]		
	Bourgeois				Th.[39]		
Samaritan	English					Oxf.	
	Pica	C	Fr.[24]				
	Small Pica		Fr.				
Sanscrit, Sanskritta, Nagari, or Bramin	English	C[5]					
Saxon[C]	Double Pica		Fr.				
	Great Primer		Fr.				
	English	C	Fr.			Oxf.	W.
	Pica	C	Fr.	V. F.		Oxf.	W.
	Small Pica		Fr.	V. F.		Oxf.	W.
	Long Primer	C	Fr.	V. F.			W.
	Brevier	C	Fr.	V. F.			W.
Sclavonian or Russian[D]	Two-line Dble-P.					Oxf.	
	Great Primer.					Oxf.	
	Small Pica					Oxf.	

SYNOPSIS (continued.)

CHARACTER.	BODY.	Caslon.	Fry.	Figgins.	Thorowgood *late* Thorne.	(40) Oxford University.	Wilson, Glasgow.
Swedish (See Danish)							
Syriac	Double Pica			V.F.[30]			
	English	C[6]		V.F.[31]		Oxf.	
	Long Primer	C	Fr.	V.F.[32]			
	Brevier			V.F.[33]			
	Nonpareil		Fr.[25]				
Tamoul (see Malabaric)							
Talik (see Persian)							
Télegú	English			V.F.[34]			
Turkish	English					Oxf.	
MUSIC	Large	C	Fr.		Th.		
	Small	C	Fr.				
Do. pleine chant de quatre points	Large		Fr.				
	Small		Fr.				
	Diminutive (Pica)		Fr.				
Blacks[D]	Two-line Gr. Pr.	C					W.
	Two-line English						
	Double Pica	C		V.F.			W.
	Great Primer	C		V.F.			W.
	English	C	Fr.[26]	V.F.			W.
	Pica	C	Fr.[27]	V.F.			W.
	Small Pica	C					
	Long Primer	C	Fr.	V.F.			W.
	Bourgeois						
	Brevier	C					W.
	Nonpareil	C					W.

A. *Arabic, English,* CASLON.—This was the first essay of WILLIAM CASLON in punch-cutting for letter-founding—it was for the Society for Promoting Christian Knowledge, in 1720, and led to his first Pica, the foundation of his fame. See a particular account of this transaction in p. 348, and Rowe Mores, p. 63.

B. *Russian, Cyrillian,* or *Sclavonian.*—The ancient character of the Russian language consists of 42 letters; the modern Russ 35. *Vide* Introduction, p. 63, "Cyrillus."

C. *Saxon.*—No less than four, if not five, Saxon founts had appeared in this kingdom by 1640; the first of which was cut by Day in 1567.

---

1. *Coptic, Pica,* CASLON.—Dr. Wilkins's edit. of the Pentateuch.

2. *Etruscan, Pica,* CASLON.—Cut by CASLON for the celebrated linguist, the Rev. Mr. Swinton, Oxford, about 1733.

3. 4. *Greek, Double-Pica, Great-Primer*, CASLON.—Cut by Martin. Of whom, see p. 360.

5. *Sanscrit, English*, CASLON.—Cut for Dr. Wilkins, oriental librarian to the East India Company.

6. *Syriac, English*, CASLON.—Cut for the Walton's Polyglot, 1657.

---

7. *Arabic, Great-Primer*, FRY.—Walton's Polyglot, 1657: was in Mr. Grover's foundery, then James's.—This fount, by a few additions to the alphabet, formed also the Turkish, Persic, and Malayan of the Polyglot. *Vide* Mores, p. 13.

8. *Arabic, Great-Primer and English*, FRY.—A fount of each cut from drawings made by Dr. Wilkins. Also, *English*, from the same punches as the fount of the Society for Promoting Christian Knowledge. See note A.

9. *Ethiopic, English*, formerly Bynneman's—*Pica*, formerly Cawood's, FRY.—Walton's Polyglot; through Andrews's and James's founderies to present possessor.

10. *Greek, Great-Primer*, FRY.—Formerly Byddell's.

11. *Greek, Long Primer*, FRY.—One fount cut from the MS. of the late professor Porson.

12. *Greek, Pearl*, FRY.—Formerly Bynneman's, same sale.

13. *Greek, Alexandrian, Pica*, FRY.—These matrices were purchased at Mr. James's sale, in June 1782. See Rowe Mores, p. 13. Dr. Fry, in his Specimen, says, that "this character was cut by Wynkyn de Worde, in exact imitation of the Codex Alexandrinus in the British Museum." This assertion was, probably, in its origin, a mere flourish of the celebrated auctioneer, Mr. Paterson, who sold James's foundery, by whom it was distinctly stated (see cat. p. 10) as *having been the property of Wynkyn de Worde*, which seems to have been Dr. Fry's authority: but this is an evident anachronism; for Wynkyn de Worde lived at least a century *prior* to Charles I, to whom this manuscript was sent as a present from Cyrillus Lucaris, a native of Crete, and patriarch of Constantinople, in the year 1628, by Sir Thomas Rowe, ambassador from England to the Grand Seignor. Cyrillus brought it with him from Alexandria, where it was written, and it is no where recorded that Wynkyn de Worde visited Egypt for the purpose of imitating the Codex Alexandrinus. It was deposited, in 1753, in the British Museum, where it is now preserved. Tradition ascribes the writing of this precious treasure to Thecla, a noble Egyptian lady, about thirteen hundred years ago, a little after the time of the Council of Nice. It consists of four folio volumes; the three first contain the whole of the Old Testament, together with the Apocryphal books; and the fourth comprises the New Testament, and various other pieces. It is written in capital letters, without any intervals between the words. A fac-simile of the New Testament was published in folio by the late *Dr. Woide*, then principal librarian of the British Museum, line for line with the original, with types cut and cast by Mr. Jackson for the purpose. The title to this volume says expressly, that Mr. Jackson was the founder—"Typis Jacksoniensis, MDCCLXXXVI." Now the assertion of Paterson, the auctioneer, may be thus accounted for—'a little learning' (in black letter lore) 'is a dangerous thing;' the similarity of the

names *Dr. Woide* and *De Worde* struck upon his eye, or ear—*Wynkyn de Worde* followed of course, and as auctioneers are allowed to puff, this was a fair occasion to his purpose, he *enlarged* a little, and warranted the matrices of the Alexandrian Greek to be the genuine work of Wynkyn de Worde.—*See more of this, with specimen of the type, and literal translation, in the Rev. Mr. T. H. Horne's Introduction to the Critical Study of the Holy Scriptures, vol. ii. p. 71. See also p. 358.*

14 to 20. *Hebrew—English, Small-Pica, Long-Primer, Brevier, Small-Pica Rabbinical, Brevier ditto, Nonpareil ditto.*—All were formerly Bynneman's, and purchased at James's sale.

21, 22. *Hibernian—Pica, Small-Pica,* FRY.—From collations with original MSS. in the Irish Language in the possession of Dr. Fitzgerald. Also *Small-Pica,* purchased at James's sale. Mr. Mores, at p. 33, says, "This Hibernian was cut in England by Mr. Moxon for the edition of Bishop Bedel's translation of the Old Testament, in 1685, the only type of that language we ever saw."

23. *Malabaric—English, Pica,* FRY.—For the College of Madras.

24. *Samaritan, Pica,* FRY.—Walton's Polyglot—Grover to James—to Fry.

25. *Syriac, Nonpareil,* FRY.—Bagster's Polyglot.

---

28. *Hebrew, Small-Pica,* FIGGINS.—This fount of Hebrew is the smallest, with points, in England; it was cut for Bagster's Polyglot Bible.

28.* *Irish, Small Pica,* FIGGINS.—Copied from the engravings in Valancy's Irish Grammar.

29. *Persian, Paragon,* FIGGINS.—Cut under the direction of Sir William Ousley.

30 to 33. *Persian, Paragon—Syriac, Double-Pica, English, Long-Primer, Brevier*—FIGGINS.—These were cut under the direction, and partly at the expense of, the late Claudius Buchanan.

34. *Télegú,* FIGGINS.—Cut from a MS.; the matrices and moulds are now in the Library of the East India Company.

---

35 to 39. *German and Russian,* THOROWGOOD.—These matrices are from the foundery of Brestkopff and Hartel, of Leipsig, but have never yet been justified.

---

40. OXFORD.—These punches and matrices, together with founts of letter, and all the other utensils and apparatus necessary for a printing house, were presented to the University by Bishop Fell and Mr. Junius, about the year 1667. The sizes of these founts do not appear to be very accurately described in the Oxford Specimens: but, as Mr. Mores says, "it may be alleged in excuse, that neither the *Archetypographus,* nor the *Curators of the Sheldonian,* are letter-founders," nor yet printers. There are upwards of 6,000 matrices. See Mores, pp. 44, 5, and *antè* p. 345.

---

41. *Greek, Double-Pica,* WILSON.—Glasgow Homer.

42. *Greek*, *Long-Primer*, WILSON.—Matrices from type cast in which the Elzivers printed some of their editions.

D Blacks. Although the old English character, or Black-letter, may not be strictly within the class of type "for languages requiring peculiar characters," yet as a British classic type, it must be regarded with veneration in England, as the character in which Wynkyn de Worde, Jaques, &c. first exercised the art, and therefore I shall include Blacks in the Synopsis; but studiously abstaining from mixing in the list the modern fanciful (but ridiculous) innovations, only called *Blacks* from the quantity of ink they are capable of carrying. See p. 366.

26. Formerly Wolf's. 27. Caxton.

The *Black-letter* fancy as proffered by the type providers of the present day, will show the extravagance of taste, and the necessity of regulating it by some standard of just proportion and acknowledged utility. The penalties of fashion have been perhaps more heavily inflicted on printers than on any other class of artizans; inasmuch as the adoption of every change is attended with a weighty and uncompensated cost to them, bringing no increase of business, but a great waste of material; they have allowed themselves to be entirely at the mercy of the letter-founder, who with his engraver, or punch-cutter, varies the fashion of type, either for the sake of novelty, or an adventitious increase of business; and at every change which he can render successful (and means are always at hand to induce some to try a new fashion) he deprecates, *pro tanto*, that which preceded it. This subject has been before observed upon when speaking of the works of BODONI and other typographers of Italy and France,* and the evil will perhaps never be remedied in this country while the fashion of type is left so exclusively at the will of those who manufacture to *sell* it, and so little to the consideration and judgment of those who are to *use* and *pay* for it.

* See p. 316.

GENERAL DESCRIPTION

OF

THE APPARATUS AND PROCESS

FOR

MOVEABLE-TYPE PRINTING.

CHAPTER I.

IN bringing forward a work of this nature, to which the amateur and the inexperienced may alike have recourse for instruction, and to which even the adept may occasionally find it desirable to refer, it will be necessary to describe every subject, however minute in itself, or remotely connected with the Art of Printing. Those who may be disinclined to peruse some of the subjects here treated of, as considering them but of little moment, will therefore, it is hoped, have the candour likewise to consider that such may, to others, appear of the first importance; and afford information, of which, had it not been here given, they might have remained totally ignorant. Without farther preamble, I shall therefore begin with describing the materials and process of printing in a general manner; deferring, to a subsequent part of the work, a more technical exposition of the Art.

The expression "moveable-type printing" implies that each letter, with some few exceptions, used in this kind of printing, is cast upon a separate stalk, shank, or body. A great many of each of the letters of the alphabet, together with points, figures, and other necessary marks and signs, all cast in certain proportions to each other, with regard to quantities, is called *a fount*. When a printer receives a fount from the type-founder, he proceeds to dispose of it, or a part thereof, into a pair of composing cases for the Roman, and a pair for the Italic, increasing the number of

pairs of either according to the weight of the fount, and the number of hands intended to be employed on it: usually, for a 1000 lbs. weight, six pairs of Roman and two of Italic are deemed sufficient.

The workmen employed in the Art of Printing are denominated, according to the particular department they fill, COMPOSITORS and PRESSMEN. The Compositors are those whose business it is to arrange and dispose the types, or letters, into words, lines, sentences, pages, and sheets, agreeable to the copy furnished by the author or editor. The Pressmen, strictly speaking, are the printers, as they take off the impressions on the paper, after the types have been arranged by the Compositor. We shall, however, here take them in due order of precedence, and first describe the materials necessary for a Compositor.

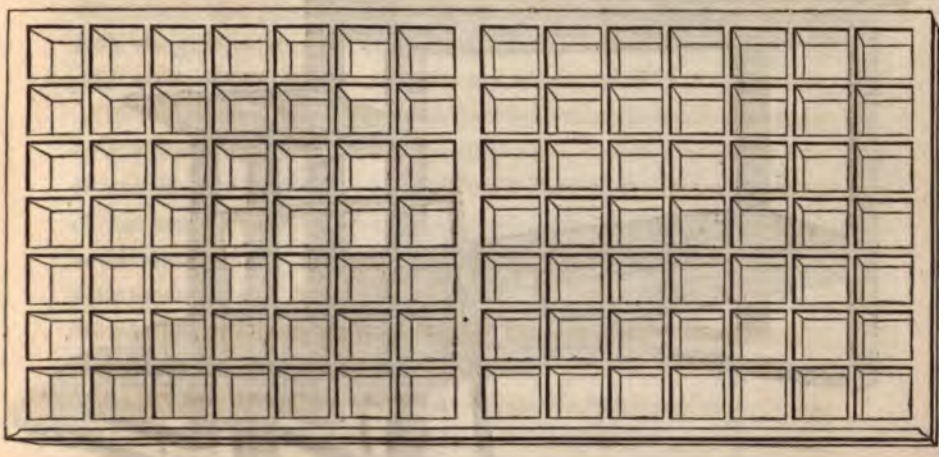
THE CASES.

The Upper Case is divided into forty-nine partitions, all equal in size, and which are adapted to receive those parts of the fount least in use, namely, two alphabets of the capital letters, denominated, the one "full" and the other "small" capitals: also the figures, accented letters, characters used as references to notes, &c. The letters and figures in this case are disposed alphabetically and numerically.

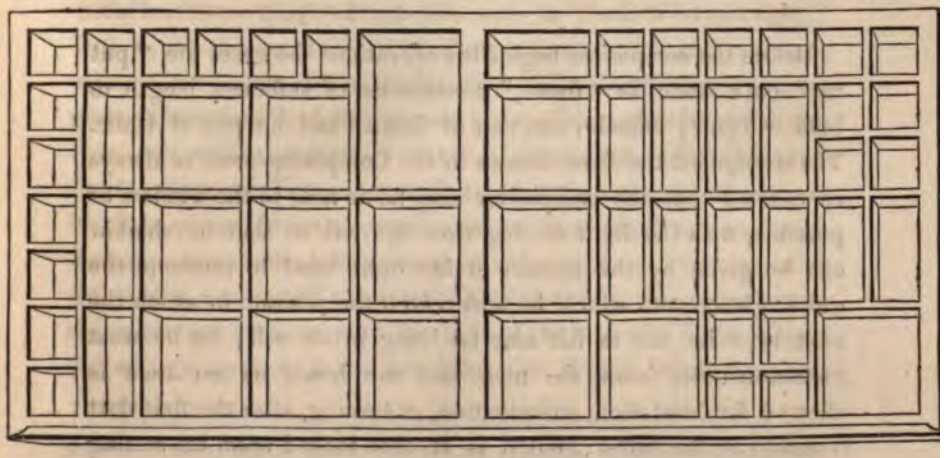
The Lower Case is appropriated to the small letters, double letters, points, some other marks used in printing, the spaces, and the quadrats. The boxes or partitions in this case are not, as in that above described, in any regular alphabetical arrangement, nor divided into cells of equal size: but they are in such approximation as to be most convenient to the hand of the compositor. Each sort of letter has a larger or smaller box allotted to it according as it is known to be more or less frequently wanted in the language for which it is intended. Thus, the e has the largest box; the a, c, d, h, i, m, n, o, r, s, t, u, the spaces, and the quadrats, boxes of the next size; b, f, g, k, l, p, v, w, y, boxes half the size of those used for the last-mentioned sorts; while j, q, x, z, ; : . () [] æ, œ, &, double letters, &c. &c. have only partitions of a quarter of the size allowed them. But a more particular description, with the several admeasurements, will

be given in the next chapter. As there is no visible mark or guide attached to the different boxes to denote the letters which they severally contain, a stranger to the art is surprised at the dexterity manifested by the compositor in taking out the letters as he wants them from the different compartments.

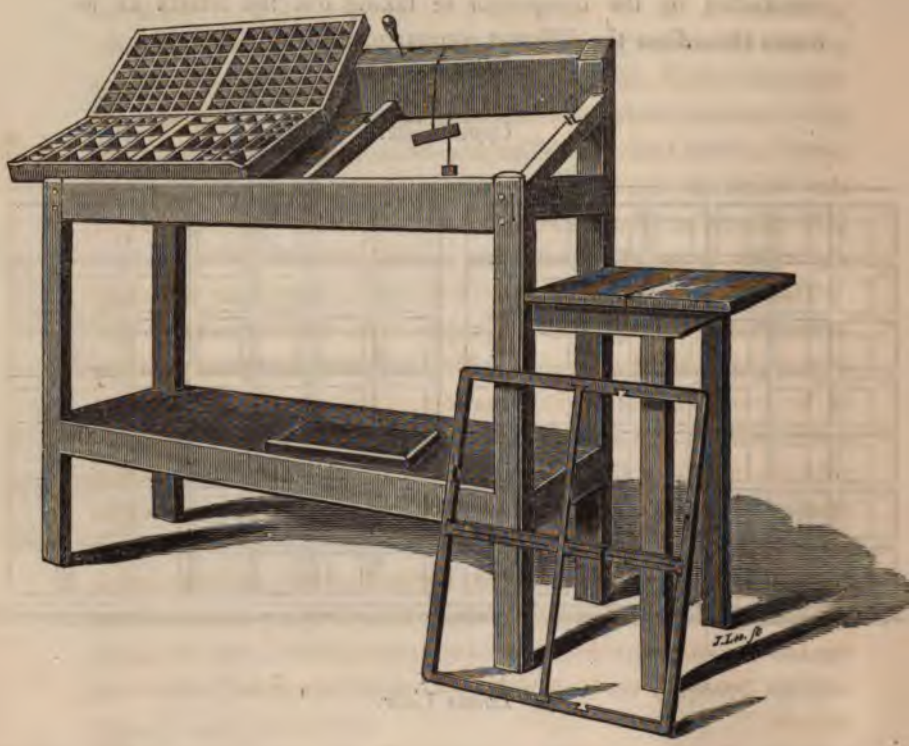
Upper Case.



Lower Case.



THE FRAME, &c.



Before the compositor begins his operations the cases are "put up" on a stand, or "frame," constructed of sufficient length to hold two pair; namely, one pair of Roman and one pair of Italic. The arrangement of these frames in the Composing-room is always so ordered that the compositor may be as near to the window as possible, with the light coming from his left so that no shadow can be given by the motion of his right hand to intercept the quick glance with which he must catch the position in which the next type he has to lift may be lying in its cell; for he must instantaneously view the nick and the head, as no time is allowed for hesitation, examination, or turning, after the first dart is made at the letter; but it is at once lodged upon his setting rule, and then finally secured and dropped into its place by the action of the left thumb alone, his eye being, at the same moment,

turned to look for the next letter to be conveyed, in like manner to follow its predecessor. The Roman cases are, therefore, always inside the frame, or nearest the light; while the Italic, as being, in modern works, of less frequent occurrence, as also to accommodate the other Compositors using that fount, lie on the outside. The cases, it may be observed, rest upon the stand in a sloping position; the lower case at an inclination of about fifteen degrees, the upper at an elevation of about fifty-five; so that the compositor may reach the upper boxes with the greatest facility, and with as little danger as possible of putting his lower case in confusion, or *pie*, by the action of his arm when reaching over it.

The engraving will make what has been described as necessary to the first fitting up of a Composing-room, familiar to every one. It was drawn by the ingenious Mr. C. Varley, by the application of his *camera lucida*. The frame is seen with the Roman cases up —the *bulk* at the end—a *galley* at the bottom—a *chase* standing, with the crosses in, for quarto or octavo, in the rim of which female dove-tails are shown to be cut for shifting the crosses to works in duodecimo or octodecimo.

The compositor, thus provided, begins his work, holding in his left hand a little instrument into which the letters are conveyed from the cases. This is called the "composing-stick;" but the peculiarities necessary to its perfect construction are stated in our next chapter.

Before the compositor begins his work he "makes his measure;" that is, he moves the slide of the composing-stick to the chosen width of the page. He next cuts, from a thin slip of brass plate, a piece to the length of the intended line, of the same height as the type, and with a projecting "knib" at one end. This is called the "setting rule," as against this the letters are to be placed. He then places himself opposite the centre of the lower case, and fixes his copy before him, secured by the simple contrivance of a slip of lead, a cord, and a counterbalancing weight, which appears in the engraving as lying over the back of the frame.* Then taking the composing-stick in his left hand, his thumb being over the

* In France and Germany they have a more elaborate utensil made for this purpose, which, having a steel point at the extremity, is stuck in the bars or boxes of the lower case; a representation of which may be seen in the dexter claw of the eagle in the vignette in the title.

slide, resting on the setting-rule, with the thumb and first finger of his right hand he takes up the letters, spaces, quadrats, &c. one by one, and places each upon the setting-rule, supporting, and placing them together by the action of the left thumb, the other hand being instantly disengaged for picking up the next letter. The whole of these movements are performed with a degree of facility not easily conceived by a stranger to the art. Upon arriving to near the extent of his measure, he observes whether the line will end with a complete word, or an entire syllable, including the hyphen, and if his last word or syllable happens exactly to fill the measure, or makes the line completely tight, he has nothing more to do to that line, but proceeds to the next: but if (which is far more likely to be the case) he finds the measure not entirely filled by perfect words or syllables, he increases the distances between the words in that line, adding more spaces equally between each until the measure is moderately tightened. This operation is called "justifying," and, if done properly, is attended with much nicety and skill; every line requiring to be of an equal degree of tightness; neither too closely wedged into the composing-stick, nor yet at all loose and uneven; neither the words spaced too close together in one line nor too wide apart in the others. This is one great criterion of a good workman. The compositor may as often have to lessen the spaces first used in a line as to add to them, particularly in narrow measures of large type, containing, of course, fewer words in a line; and it frequently happens that a long monosyllabic word, or syllable, will not, as the line is first spaced, go in at the end, and to drive out which the line would appear with great gaps; he must, therefore, in such a case, change his spaces for thinner, some of which, from their being very thin, are called "hair spaces."* The line having been completed, the brass rule is drawn out and placed over or upon that line, and the compositor proceeds with the next, and so on with the succeeding lines, until his composing-stick is filled, which takes, perhaps, ten or twelve lines of middling-sized type. He then places the setting-rule in front of the last line, and fixing his fore-finger of each hand in front of the rule, he

* Spaces may here be defined as pieces of metal of various degrees of thickness, shaped exactly as the stems of the letter; but not standing so high, do not consequently receive the ink, and therefore give no impression on the paper.

presses the middle fingers against the sides of the lines, and his thumbs behind the first line, raising the whole out of the composing-stick at once. He thus conveys the "stick-full" to the "galley" (a thin board of mahogany, or wainscot wood, having ledges on two sides) disengaging the thumbs as he places the lines against the head of the galley, or against the lines which have been previously emptied and placed thereon.

Having set sufficient for his page, and placed the head-line at top, and signature or direction line at bottom; and also, generally, an additional line of quadrats, he ties it round with three or four yards of small cord, called sealing twine, technically "page-cord," and removes it from the galley on to a page-paper, when it is placed on the bottom board of his frame, or other safe and convenient place. In this manner he proceeds till he has composed as many pages as are required to make a half-sheet, or sheet, according to the nature of the work.

The next process is, to arrange the pages, thus far proceeded with, for *imposing*. A large oblong stone, or marble, of perfectly plane surface, five to eight inches thick, fixed in a strong frame, so as to form, as it were, a table, with drawers underneath for "furniture," must be provided for this purpose, on which the pages are curiously placed, according to certain rules of the art, so that, when printed, and the sheet folded, they may fall in regular succession, page 2 on the back of page 1, 4 on the back of 3, and so on. Much attention is necessary in this process, particularly in works of more pages in a sheet than folio or quarto.

Having disposed, or "laid down," the pages in this right order, the next task is dressing the "chases."* To dress the chase, a suit of furniture is necessary, consisting of slips of wood, of different breadths. Then the chase being laid over the pages, so as to inclose them, those parts of the furniture called "gutter-sticks" are placed between the respective pages. Next, another part of

* *A Chase* is a rectangular iron frame, the dimensions of which differ according to the sizes of the paper to be printed. Two cross-pieces of the same metal, called "long" and "short cross," having small dovetails at each end, so that they may be taken out or replaced as occasion may require, are fitted to each chase. By the different situations of these crosses the chase is altered so as to suit different-sized volumes, as folio, quarto and octavo, duodecimo, eighteens, &c.

the furniture, called "reglets," is placed along the sides of the crosses of the chase. The reglets are of such a thickness as will so regulate the position of the pages as to give the book a proper margin after it is bound. Having dressed the inside of the pages, the compositor has to do the same with their outsides by putting side-sticks and foot-sticks to them. Thus the pages being all adjusted to their proper distances, they are all untied and fastened together by wooden wedges, called "quoins." These wedges being firmly driven up the sides and feet of the pages, by means of a mallet and a piece of hard wood, called a "shooting-stick," all the letters in each page are fastened together in one mass. Before beginning to lock up, and again after he has gone the last round with the mallet and shooting-stick, the compositor "planes down" the "forme,"* to make the surface of the type stand flat and even, by blows of the mallet upon a piece of smooth wood laid upon the pages, called, from its use, "a planer;" and it is then ready for the pressman, who lays it upon the press, for the purpose of pulling a proof. This having been done, the forme, or formes, must be rubbed over with a brush dipped in strong lye, made with pearl-ash and water, and being carefully taken off the press, the proof and formes are delivered to the care of the compositor.

As it is impossible for the most skilful workman to compose his work so correctly as to want no further alteration before the number wanted is worked off, the next thing to be done is, to put the proof, with the copy from which it has been composed, into the hands of the reader or corrector, whose business is, to read over the whole proof two or three times with great care and attention, and to mark the *errata* in the margin of every page. The corrections are always placed against the line in which the faults are found; and certain marks are used to denote the different corrections, all of which will hereafter be minutely described.

After a proof has been compared and read by copy, and the faults noticed by the reader, it is returned into the hands of the compositor, who proceeds to correct in the metal what has been marked for correction in the proof. For this purpose he lays the forme on the imposing stone, and unlocks it by loosening the

* The types thus fastened together in the chase are all together called *a forme.*

quoins, or wedges, which bound the letters together. He then changes the faulty letters, or words, and alters his spaces before he drops the line. When there are any considerable alterations, and particularly where insertions or omissions are to be made, there will often be a necessity of "over-running" to "get in" or "drive out;" and to effect this, the compositor must decompose or convey the lines back from the galley again into the composing-stick, to be new spaced and justified according to circumstances. If, for example, the word or words to be inserted in a line cannot be gotten in by lessening the spaces between the words of that line, part of it must be put back into the end of the preceding line, or forward into the beginning of the subsequent one, by lessening the spaces in either or both, till room has been obtained. If the insertion be large, it may be necessary to over-run several lines, either backwards or forwards, until a break, or short line, shall have been reached, when, if it be not got in, a line will be driven out; and then, to make room for that line, if there does not happen to be a line of quadrats, or white line, at the foot of that page, the next page, or pages, either forward or backward, must often be over-run before it can be finally made up.

When any portion of the matter is to be abstracted, exactly the reverse course must be taken. If it be but trifling, the compositor takes it out and fills up the line by enlarging the spaces of that line; or by taking from the end of the preceding, or the beginning of the following. If it be more considerable, he may be obliged to over-run many lines before he can *drive out* or *make even*.

The first proof having been corrected, another is pulled to be put into the hands of the reader, or sent to the author for examination. This proof being read and corrected, as before, a revise is pulled, to see whether all the errors marked in the last proof are properly corrected. As to those faults which may have escaped the compositor, the reader, and the author, they are usually referred to in a list of errors called *The Errata*. The works of ancient printers had no errata affixed, because they corrected the faults in each copy with a pen; which was easy enough in those days, though nearly impracticable in these.

When the sheet is correct the formes are given to the pressman, whose business is to print them when they have been prepared and corrected as before described. Four things are required at

entering upon this process; namely, paper, ink, balls, and a press. The paper is prepared for use by being dipped, a few sheets at a time, in water; and, afterwards being laid in heaps, to make the water penetrate equally into every sheet, a thick deal board is laid upon each heap, upon which are placed heavy weights. The reason why the paper undergoes wetting before it is printed upon, is, that it is thus rendered sufficiently soft to adhere closely to the surface of the letter when subjected to the action of the press; and, consequently, by taking up a proper quantity of ink, it is made susceptible of a good impression. It is moreover necessary that the paper should be wetted, lest its stiff and harsh nature when dry should injure the face of the letters. The different degrees of wetting required can only be obtained by practice, which depends principally upon the quality of the paper, and the size of the type; the stout and hard-sized paper requiring from four to six dips each quire; paper of a more common quality, not so many; the smaller and closer the type, also, the more wetting will be required.

The Ink is bought, of various qualities and prices, of the manufacturer.—[*See the article on Ink.*]

The Balls will be particularly described hereafter. They, when completed, have the shape and appearance of a large round-headed mallet, such as is used by stone-masons, except that their surface is much broader and rounder. A late improvement has, in a great degree, superseded the use of balls. This is a cylinder, upon which is cast a coating of composition that will be hereafter described. The cylinder has an axis with two handles; and being repeatedly rolled on the table, or stand, distributes the ink equally upon its surface, which in the same manner is transferred to the forme of type.

A Printing Press is a machine requiring very accurate mechanical construction. At the earliest period of the art it was brought so near to perfection that no very material improvements took place in its make, until Lord Stanhope invented a press constructed entirely of iron. More details upon this head will be found in the subsequent chapter; but, in order to continue the general descrip-

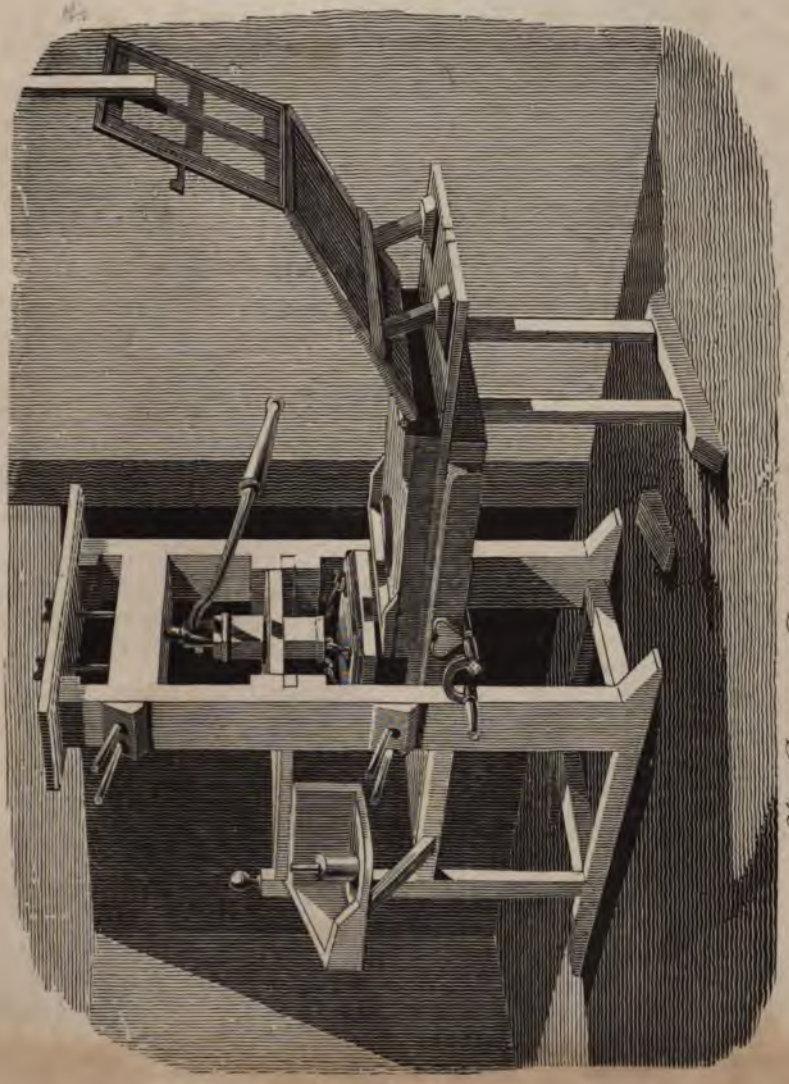
tion of the process of printing, it may be well to take the original press for our model, and to proceed; since in the Stanhope, and others which have followed, the principle is essentially the same.

The opposite engraving will show the press in perspective. To describe it and its use in detail will require some time and space. It has two principal parts, each of which is composed of several subordinate parts or members: it will therefore be necessary to describe it as dissected into its various parts, with references to the excellent engravings of Branston, which will be found in the following pages with more detailed descriptions and admeasurements. One of those which are here described as principal parts, may be called the body of the press; which is a strong frame containing the power that produces the pressure upon the paper: the other is the part on which the forme of types is laid for printing; and which is contrived, by means of an apparatus underneath, to be run out of and into the body of the press at pleasure, in order to remove the sheet when printed; and to introduce another sheet. For the convenience of changing the sheets as they are printed, frames are provided called the *tympan* and *frisket*, which fold upon each other, and inclose the sheet between them, and which are then all together folded down upon the types.

The body of the press consists of a strong frame-work of timber, a part of which is called the feet, fig. 1, having mortises to receive two strong perpendicular posts called the cheeks, fig, 2; which are supported by another lighter framing called the hind-posts and rails, fig. 3, also fixed into the feet; the cheeks are moreover held together by four horizontal cross pieces; the upper of which, fig. 4, is called the cap, its office being to retain the upper part of the cheeks at the proper distances asunder: the next cross piece, fig. 6, is called the head; it is fitted by tenons at the ends into mortises in the cheeks, and these mortises are filled up with pieces of scale-board, cards, old hat, &c., in such a manner as to admit of a small yielding or spring. The head is sustained by two long screw bolts, fig. 7, which suspend it from the cap: in the head is fixed a brass nut, containing a female screw or worm of two threads, which is fastened in the wood by two short bolts, fig. 8, to keep it up: the worm is adapted to receive the screw by which the pressure is produced. The third cross piece, fig. 9, called the shelves, or till, is to guide and keep

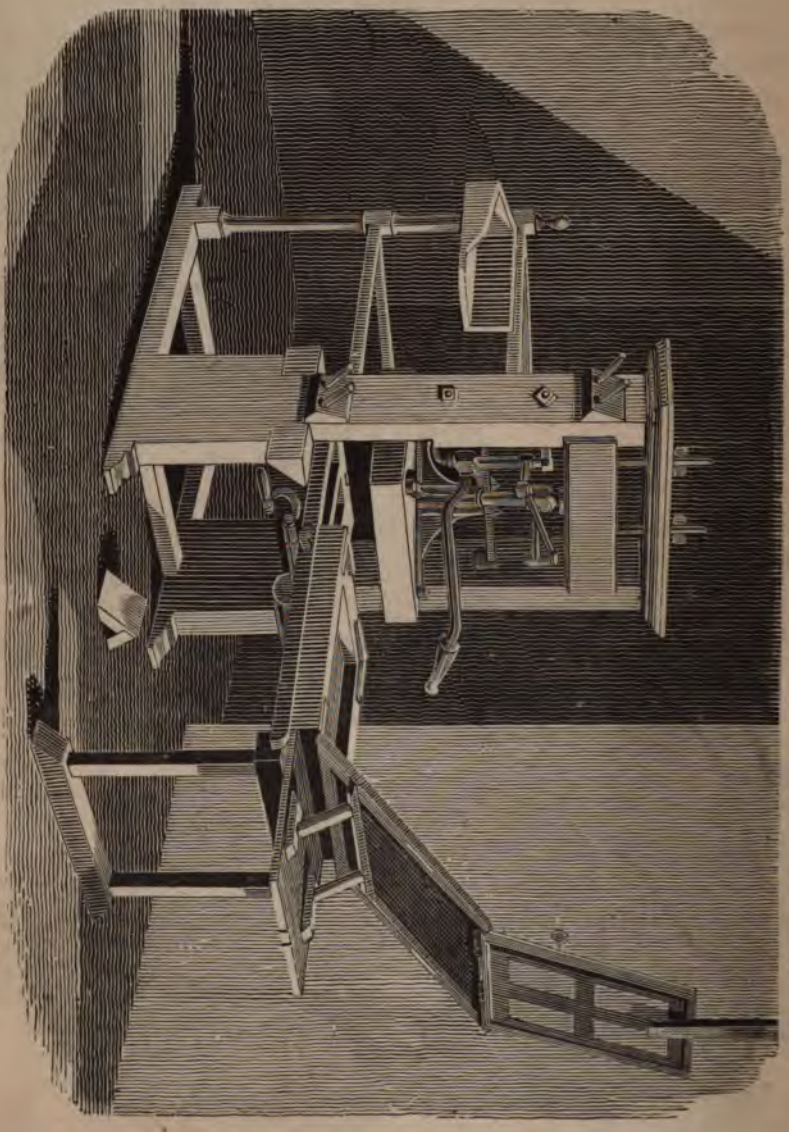
steady a part, called the hose, fig. 10, in which the spindle of the screw (to be spoken of hereafter) is inclosed. The fourth cross piece, fig. 5, called the winter, is a massive piece of timber; it is fitted between the cheeks to bear the carriage; it sustains the effort of the press beneath, as the head does above, each giving way a little, the one upwards the other downwards, to make the pull the easier.* The spindle, fig. 11, is a solid piece of iron, pointed at the lower end with steel, having a male screw formed on its upper end, of two threads, which enters into the female screw or worm fixed in the head: through an eye in this spindle is fixed the lever or bar, fig. 12, by which the pressman gains the power for the impression. The platten, fig. 13, or surface which acts upon the tympans, is suspended from the point of the spindle by means of a square block or frame of wood, called the hose, fig. 10, which is guided by passing through the shelves, fig. 9: the lower part of the spindle passes through the hose, and its point rests in a small steel cup, fixed in a brass saucer, supplied with oil, which rests upon an iron plate, let into the top of the platten. The pressman then, by pulling the lever, which is fixed in the eye of the spindle by an iron key, turns the screw, and presses down the platten upon the forme, upon which is laid the paper, tympans, and blankets, which are brought under the platten, when the impression is to be given. That the platten may be suspended perpendicularly from the spindle, and rise up again with it, the hose is attached to the spindle by the garter, fig. 10, E, this is a fillet of iron screwed to the hose, and entering into a nick or groove formed round the upper part of the spindle; it prevents the hose falling down on the spindle. At each corner of the lower part of the hose there is an iron hook fastened, and from these to similar

* A more erroneous principle in mechanics could not well have been devised than that which has been applied to this part of the printing-press. At one end the fore-stay supports the carriage and ribs, without a possibility of any yielding to the pull, while at the other end it is made to yield when the power of the screw, acting upon the plank, coffin, stone, and forme, is brought upon it: and therefore, if adjusted, as it is always attempted to be, truly horizontal, this part of the press must be forced into the position of an inclined plane by the yielding of the winter. This is the occasion of the disagreeable noise made by most of these presses in working; the parts cannot move truly perpendicular: the remedy is therefore obvious—let the winter lie quite solid, and the carriage and ribs truly horizontal.



The Printing Press of the original Construction.

To face page 415.



The Common Press with the Application of the Stanhope Power.

To face page 648.

hooks, fastened at each corner of the platten, cords are looped to suspend the latter, they being exactly adjusted, to hang it truly level.

The carriage,* fig. 14, is a wooden frame lying horizontally, having its fore-part supported by a wooden prop called the fore-stay, fig. 15, while the other end rests on the winter; on the rails of this frame two long steel bars or ribs are fixed. Beneath the carriage is placed an axis called the spit, fig. 16, with a double wheel of beach wood fixed on the middle of it, round which leather girths are passed and fastened, the opposite ends being nailed to each end of the plank, fig. 17; under the plank are nailed short pieces of iron or steel, called cramp irons, which slide upon the ribs, when the carriage is run in or out, by the following means: on the extreme end of the axis is fixed the handle or rounce, by which the pressman turns the axis, and this, by means of the wheel and girths, runs the forme, &c. in or out. Upon the plank, fig. 17, a square frame of wood is fixed, to form the coffin or cell, in which a marble or polished stone is inclosed, accurately bedded in bran, plaster, &c., for the forme to be laid upon. To this plank are fastened leather stay-girths, one to each end, being at the opposite ends fastened to the end rails of the carriage, to prevent the press running too far out or in.† On the fore-part of the plank is a slight frame, called the gallows, fig. 19, which serves to sustain the tympan, when turned up from off the forme, on its hinges. The tympans, figs. 20, 21, are square frames covered with parchment. The frames are made of three sides of wood, a slip of iron at the top, called a head-band. The two tympans are fitted

* I am not at all satisfied as to the propriety of the appellation which has been given to the two parts of the press represented by figs. 14 and 17. It seems that the term "carriage," would more properly apply to the part, fig. 17 (to which the motive power being given, it carries in and out the forme, paper, &c.), as comprehending under one term, the coffin, plank, cramps, &c., while that now designated the "carriage and ribs," fig. 14, might with more propriety be called, "the wooden and steel ribs." Dr. Rees, in his Encyclopædia, has adopted these distinctions; but as I find such authority as Moxon, and general custom, on the other side, I must conform to what my predecessor, Stower, has adhered to in this part of the description.

† "Run in," or "run out" "the press," is the technical expression for working the plank, coffin, stone, forme, and tympans, to and fro.

together by the frame of one being small enough to lie within the other: the outward tympan is fastened with iron hinges to the coffin. Between the two parchments of the tympans one or two blankets are placed, either woollen, cloth, or kerseymere, according to the nature of the work, which serve to make the impression into the surface of the paper, as also to prevent the letters from being broken by the force of the press; the use of the inner tympan is to confine these blankets. The frisket, fig. 24, is a square frame of iron, made very thin, and fastened to the head-band of the outer tympan by hinges or pivots: it folds down upon the tympan, to hold fast the sheet of paper between them, the parchment or paper with which the frisket is covered being cut out in the necessary places, so that the sheet, when placed between the tympan and frisket, and both together folded down on the forme, may lie next the types in the pages; the frisket keeping the remaining part of the margin clean. The tympan and frisket, when folded down, is run in with the press; but when again run out, the tympan is lifted up upon its hinges, resting as represented, in an inclined position against the gallows, at the back part of the plank; then the frisket is turned up on its hinges, and sustained by a slip of wood or catch, hanging from the ceiling, whilst it continues open, to take out the printed sheet and put in another white sheet.

To regulate the margin, that is, to make the lines and pages answer or back each other when printed on the opposite side of the sheet, two points, fig. 22, are fixed by point screws, fig. 23, to the middle of the sides of the frame of the tympan, the spurs of which make two holes in the sheet. These holes are placed on the same spurs, when the sheet is returned for making an impression on the other side, which is called the *reiteration*, and the points are so adjusted that they may make the impressions of the opposite sides exactly correspond.

The ink is laid upon the forme by balls, when the use of them is retained, which are a kind of wooden cups with handles, fig. 25, the cavities of which are filled with wool, or hair, covered with undressed sheep's skin nailed to the wood. One of these the pressman takes in each hand, and applying them on the ink-block, fig. 26, to charge them with ink, he works them one against the other, to mix and distribute the ink equally; and, at last, inks over

the forme by beating or dabbing them several times over the whole face of it; this leaves the forme in a condition to be passed under the press, with the moistened paper laid on it.

To prepare for working, the parchment of the outer tympan, against which the sheet is to be laid, is wetted till it is very soft, in order to render the impression more forcible; the proper blankets are then put in, and secured from slipping by the inner tympan. Then, while one pressman is beating the letter with the balls, the other person places the sheet of paper on the tympan, turns down the frisket upon it, to inclose it, keep the margins clean, and prevent it slipping; then folding the tympan down upon the forme by a simultaneous motion of the several joints, and turning the axis by means of the rounce, with his left hand, he brings the forme, with the stone, &c. under the platten; and pulls the lever or bar with the right hand, by which means the platten presses the paper close upon the letter; by this first motion, in presses of the ordinary construction, now called in distinction "two-pull-presses," half the forme is printed; for the platten being only half the size of the sheet, it is printed at twice, and the first time the carriage is run into the press, the pressman knows by a chalk mark previously made on the carriage when the first half of the sheet is under the platten;* then releasing the bar, he advances the forme still forward into the press, by turning the rounce, and gives a second pull: now letting go the bar or putting it gently back upon the catch against the cheek, he runs out the forme, lifts up the tympans, opens the frisket, takes out the printed sheet, and lays on a fresh one; and this is repeated, until he has taken off the impression for the full number of sheets the edition is to consist of. One side of the sheet being thus printed, the forme for the other is laid upon the press, or another press if necessary, and worked off in the same manner; the sheet

* In this operation he places his foot against a foot-board beneath the press, and leans his body back to gain a greater purchase. Presses are, in general, adapted for the screw to make a sufficient pressure by a quarter turn of it, but this the pressman can vary to his own inclination, by packing up the head of the press with pieces of pasteboard in the mortises, till it yields as much as he requires for a long pull; or if he puts blocks of wood to fill up the mortises, it will make a short pull, which has much the advantage of the other, in respect to the total exertion it requires; but then the handle being suddenly checked on coming to the pressure, it gives a shock to the whole body, which few men can bear. Strong men will work best with a solid pull.

being so disposed, that the spurs of the points shall pass through the holes already made in the sheet by working the first side, or white paper.

Sometimes it is required to cut the frisket afresh, where the second side is to be more or less full of printing than the first, as is frequently the case at the beginning and ending of books, half pages at the ends of chapters, &c.

The operations of the printing press, when conducted by an expert pressman, are performed with a surprising rapidity; but the labour is very great. Two men are required to make a "full press" (when only one is at work, it is called "half press"), who take it by turns to pull, that is, work the press; and beat or roll, that is to ink the types. Whilst one man is employed in pulling the sheet, his comrade is distributing the ink on his balls or rollers, by applying the balls to the ink-block, fig. 26, which is fixed up against the cheek of the press, and has ink spread out upon it by the slice and brayer, fig. 27, which is a wooden muller to rub out, or mix and grind the ink; then applying the balls together, and turning them by a double motion round in his hands, whilst the surfaces are rolled or dabbed against each other, the ink becomes equally distributed over them; if working with the roller, by applying it against the inking cylinder, or on the upper part of the table, and by repeatedly rolling it, in varying directions, upon the plane surface of the table, obtains a perfectly equal coat of ink upon the face of the composition. By this time the other man having made the pull, run out the press, and opened the tympan, the other instantly begins the inking, whilst the puller gets the sheet changed. In beating, he holds a ball in each hand, and applies them upon the types, with the handles in an inclined position; and then mounts the handles perpendicular, by which means the leather or skin is rolled over the surface of the types, and they are effectually inked; having thus inked a space of as much extent as the two balls will conveniently cover, they are lifted off the letters, and lightly removed on to another part, which is inked in the same manner, till the whole sheet is gone over.

The severe labour of printing by the ordinary press, rendered it very desirable to obtain an accession of power. Many attempts have been made to produce a press which would print the whole surface of a sheet at a single pull: the first was brought from

France many years ago, and called "The Apollo Press." It was a wooden press of the ordinary construction, except that the platten was composed of an iron plate instead of a wooden plank, sufficiently large to print the whole sheet at once: the under surface of it was covered with brass, and made truly flat: and the screw, or spindle, instead of being turned by the bar or handle, in the usual manner, was united, by connecting rods, with a long lever, placed at the side of the press, and the man worked it by applying both hands to the lever, to bring it down nearly by the same action as working the lever of a pump; this action, requiring a motion of the whole body, was found hurtful to the men, and in consequence they were soon disused, even for printing newspapers, where expedition is a consideration superior to every other.

Among the contrivances for improving the common printing press, the most successful in a long course of practice, was invented many years ago by Mr. Roworth, a printer in London, now of Bell Yard, Fleet Street. Instead of the screw he has a plain vertical spindle, furnished with a bar, hose, &c., just as usual; but the upper part, where the worm is usually cut, is a plain cylindric spindle, and fits into a socket fitted into the head of the press. Upon the upper end of the spindle, just beneath the head, a short cross arm is fixed, which acts against a circular inclined plane fixed under the head of the press; therefore, by turning the spindle, the cross arm acts against the under side of the circular inclined plane, and causes the spindle to descend in the same manner as the screw, but with this advantage, that the inclined plane is formed with a rapid descent at the time the action first begins; but when the platten has come down to the tympan, and the pressure begun, the plane has a very slight inclination, and therefore a great power to produce the impression; and this power increases as the resistance increases. Still, from the manner in which the platten is first brought down, there is not, on the whole, that corresponding loss of time which takes place in the usual mechanical combinations for producing a great power. A great advantage is also derived in the working of this press, from making the inclined plane and cross arm of hardened steel. It will hereafter be seen that the power of Cogger and Scott's press is acquired by a similar principle.

The Stanhope press, which is now becoming general (a detailed description of which, will be reserved for chap. vi), has this

property in a higher degree, and is therefore capable of printing a double surface to the common press, with a very small portion of the power which that required.

A Stanhope press consists of a massive frame of cast iron, formed in one piece: this is the body of the press answering to the cheeks, cap, head, shelves, winter, &c., of the common press, in the upper part of which a nut is fixed for the reception of the screw, its point operating upon the upper end of a slider, which is fitted into a dovetail groove formed between two vertical bars of the frame. The slider has the platten firmly attached to the lower end of it; and being accurately fitted between the guides, the platten must rise and fall parallel to itself when the screw is turned. The weight of the platten and slider are counterbalanced by a heavy weight behind the press, which is suspended from a lever, fig. 7, acting upon the slider to lift it up, and keep it always bearing against the point of the screw. Two projecting pieces, all in one piece with the main frame, answering to the winter, are cast to support the carriage when the pull is made; to these the rails, or ribs, are screwed, and placed truly horizontal for the carriage to run upon, when it is carried under the press to receive the impression, or drawn out to remove the printed sheet. The carriage is moved by the rounce or handle, with an axis and leather girths, similar to the wooden press. The principal improvement of earl Stanhope's press consists in the manner of giving motion to the screw, which is not done simply by a bar or lever attached to the screw, but by a second or multiplied lever; thus, the screw has a short lever, fig. 1, D, fixed upon the upper end of it, and this communicates by an iron bar, or link, E, to another lever, C, of rather shorter radius, which is fixed upon the upper end of a second spindle, A, and to this the bar or handle, F, is fixed. Now, when the workman pulls this handle, he turns round the spindle A, and by the connection of the rod, E, the screw turns with it, and causes the platten to descend and produce the pressure. But it is not simply this alone, for the power of the lever, F, is transmitted to the screw in a ratio proportioned to the effect required at the different parts of the pull; thus at first, when the pressman takes the bar, F, it lies in a direction parallel to the frame, or across the press, and the short lever, C (being nearly perpendicular thereto), is also nearly at right angles to the connecting rod E, but the lever, D, of the screw,

makes a considerable angle with the rod, which therefore acts upon a shorter radius to turn the screw; because the real power exerted by any action upon a lever, is not to be considered as acting with the full length of the lever between its centres, but with the distance in a perpendicular drawn from the line in which the action is applied to the centre of the lever. Therefore, when the pressman first takes the handle, F, the lever, C, acts with its full length upon a shorter length of leverage, D, on the screw, which will consequently be turned more rapidly than if the bar itself was attached to it; but on continuing the pull, the situation of the levers change, that of the screw, D, continually increasing in its acting length, because it comes nearer to a perpendicular with the connecting rod, and at the same time the lever, C, diminishes its acting length, because, by the obliquity of the lever, the rod, E, approaches the centre, and the perpendicular distance diminishes; the bar or handle also comes to a more favourable position for the man to pull, because he draws nearly at right angles to its length. All these causes combined have the best effects in producing an immense pressure, without loss of time; because, in the first instance, the lever acts with an increased motion upon the screw, and brings the platten down very quickly upon the paper, but by that time the levers have assumed such a position as to exert a more powerful action upon each other, and this action continues to increase as the bar is drawn forwards, until the lever, C, and the connecting rod, are brought nearly into a straight line, and then the power is immensely great, and capable of producing any requisite pressure which the parts of the press will sustain without yielding. The handle is sometimes made to come to rest against a stop, which prevents it moving further, and therefore regulates the degree of pressure given upon the work: but to give the means of increasing or diminishing this pressure for different kinds of work, the stop is made moveable to a small extent. A better plan is adopted by some makers of the Stanhope press, viz. to have a screw adjustment at the end of the connecting rod E, by which it can be shortened; it is done by fitting the centre pin which unites it to the lever, D, in a bearing piece, which slides in a groove formed in the rod, and is regulated by the screw. This shortening of the connecting rod produces a greater or less descent of the platten, when the handle is brought to the stop.

The carriage and platten are made of cast iron, each in the form of a box, with several cross partitions, which are all cast in one piece, and though by this contrivance metal is saved, yet it is exceedingly strong: the surfaces are made truly flat, by turning in a lathe. The slider, fig. 4, has a plate formed on the lower end of it, which is fixed by four screws upon the top of the platten, and thus they are united. The remainder of the apparatus and all the operations of working by the pressmen, are exactly the same as the common press. The iron frame of the press is screwed down upon the wooden base by bolts, which pass through feet, projecting from the lower part of the iron frame. Another wooden beam is fixed into the centre of the former at right angles, which lies upon the floor. The ribs for the carriage to run upon are supported from the wooden base by an iron bracket.

The advantages of the iron presses in working are very considerable, both in saving labour and time. The first arises from the beautiful contrivance of the levers, the power of the press being almost incalculable at the moment of producing the impression; and this is not attended with a correspondent loss of time, as is the case in all other mechanical powers, because the power is only exerted at the moment of pressure, being before that adapted to bring down the platten as quickly as possible. In the Stanhope press, the whole surface is printed at once, with far less power upon the lever than the old press, when printing but half the surface. This arises not only from the levers, but from the iron framing of the press, which will not admit of any yielding, as the wood always does, and indeed is intended to do, the head being often packed up with elastic substances, such as paste-board, or even cork. In this case much power is lost, for in an elastic press the pressure is gained by screwing or straining the parts up to a certain degree of tension, and the effort to return produces the pressure: now in this case, the handle will make a considerable effort to return, which, though it is in reality giving back to the workman a portion of the power he exerted on the press, is only an additional labour, as it obliges him to bear the strain a longer time than he otherwise would. The iron has very little elasticity, and those who use such presses find it advantageous to diminish the thickness of the blankets in the tympan to one very thin piece of fine cloth; the lever has then very little tendency to return, and the pull is easy in the extreme, re-

quiring very little more force to move it at the latter, than at the first part: indeed, it is so different from the other press, that when an experienced pressman first tries it, he cannot feel any of that reaction which he has been accustomed to, and will not believe, till he sees the sheet, that he has produced any impression at all; and for many days after he begins to work at an iron press, he by habit throws back all the weight of his body in such a manner as to bring the handle up to its stop with a concussion that shakes his arm very much; and in consequence most pressmen, after a few hours' work, feel inclined to give up the iron press; but when they have once got into a new habit of standing more upright, and applying only as much force as it requires, the labour of the pull becomes less than that of running the carriage in and out; and men who are accustomed to the iron presses only, would be scarcely able to go through the work of the old press.

This account of the Stanhope press is partly taken from Dr. Rees's Encyclopædia, where may be seen excellently drawn and beautifully engraved elevations and plan.

CASE.

CHAPTER II.*

Of Compositor's work—Description of a Fount—Upper Case—Lower Case—Capitals—Small Capitals—Accented Letters—Numeral Letters—Figures—Reference Marks—Points—Quadrats—Spaces—Rules—Space-rules—Braces—Superiors—Fractions—Quotations—Two-line Letters—Flowers—Leads, or Space-lines—Greek and Hebrew—Mathematical, Algebraical, and Geometrical sorts.—Of casting-off Copy; various methods—Different Scales and Tables—Frame—Cases—Stone—Boards—Furniture—Side-sticks—Gutters—Cast-iron Gutters and Side-sticks—Quoins—Shooting-stick, &c. &c.—Chases—Observations on Composing—Schemes of Cases—Lord Stanhope's plan—Laying of Letter—Distributing—Composing—Composing-stick—Imposing—Schemes of Imposing various sizes of Works—Dressing the Formes and making Margin—Tables of Signatures and Folios—Locking-up—Proofs—Expedition work—Companionships.

PRINTERS divide a fount of letter into two classes.

1. The Upper-case;—2. The Lower-case sorts.

The Upper-case sorts are, Capitals, Small Capitals, Accented Letters, Figures, and References.

The Lower-case consists of, Small Letters, Double Letters, Points, Spaces, Quadrats, &c. each of which we shall treat of under distinct heads.

Of Capitals.

THE use of capitals has been considerably abridged of late years; and the antiquated method of using them with every substantive, and, sometimes, even with verbs and adverbs, is now

* It will be necessary to allow, in this chapter, of some slight repetitions of the preceding.

discontinued, except in very few instances. They are considered, in the present day, as necessary only to distinguish proper names of persons, places, &c. There are, however, some particular works, in which authors deem it essential to mark emphatical words with a capital: in such cases (and there can be no general rule to guide the compositor) we would recommend the author always to send his copy properly prepared, in this particular, to the printer, or he will become liable to the charge the compositor is allowed to make for his loss of time in following his alterations. The method of denoting a capital, or words of capital letters, in manuscript, is by underscoring it with three distinct lines.

Of Small Capitals.

THE small capitals C, O, S, V, W, X, Z, so closely resemble the same letters in the lower case, as to require particular care in the compositor to prevent their mixing, as the difference can scarcely be discerned but by their being cast thicker than the others.

In manuscript, small capitals are denoted by having two lines drawn under them.

Small capitals are used for the purpose of giving a degree more of import to a word or sentence, than can be conveyed by printing the same in italic. They are also employed for chapter heads, running heads, &c., according to the fancy of the printer. The first word of every section or chapter is generally put in small capitals, after either a full capital of its own fount, or one of a size or two larger, accurately justified so as to line at the foot with the remainder of the line, and which, from this adjustment, is usually termed a *cock-up letter*. Small capitals are also much used for the catch-lines in the display of title-pages; yet, if the office have founts whose full capitals answer to the size, they are preferable, as being less liable to "clog up" in the working. They are usually cast to the roman only; but those founts which have italic small capitals, have a very elegant addition.

Of Accented Letters.

THOSE which are called accented by printers, are the five vowels, marked either with an

Acute	á é í ó ú
Grave	à è ì ò ù
Circumflex	â ê î ô û
Diæresis	ä ë ï ö ü
Long	ā ē ī ō ū
Short	ă ĕ ĭ ŏ ŭ

Those who call accented letters all that are of a particular signification, on account of being distinguished by marks, reckon the French ç, the Spanish ñ, and the Welch ŵ and ŷ, in the class of accented letters, though not vowels. As the longs and shorts are used only in particular works, they are not cast to a fount of letter, unless ordered.

Of the French ç, *the Spanish* ñ, *and the Welch* ŵ *and* ŷ.

To make a tail to a capital C, a figure of 5 inverted, and of a small size, is not improperly used.

The ñ marked with a stroke over it, is used in the Spanish, and pronounced like a double *n*, or rather like *ni;* but short and quick, as in *España*. It is a sort which is used in the middle of words, but very rarely at the beginning.

In the Portuguese language an accent or mark called *til*, is generally used in all words which would end in *oens*, as a contraction for the *n;* it was formerly used over the ẽ, but in modern works it is used over the õ—as for instance, *informacoens, milhoens*, will be written and printed with the termination thus, ões, *informacões, milhões, &c.*

In the Welch language, ŵ and ŷ, as well as the other circumflexed letters, are used to direct the pronunciation.

Of Numeral Letters.

NUMERAL letters were used by the Romans to account by, and are seven in number, I V X L C D M. The reason for choosing these letters seems to be this: M being the first letter of *mille,* stands for 1,000, which M was formerly written CIↃ. Half of that, viz. IↃ, or D, is 500.—C, the first letter of *centum,* stands for 100; which C was anciently written Ɔ, and so, half of it will be 50, L.—X denotes 10, which is twice 5, made of two Vs, one at top and the other at bottom.—V stands for 5, because their measure of five ounces was of that shape; and—I stands for 1, because it is made by one stroke of the pen.

Sometimes small capitals are used for numerals, in the same manner as the seven sorts of capitals; and look neater than the last; lower-case letters are also applied to the same purpose.

Arithmetical Figures.

ARITHMETICAL or Arabic figures are nine in number, besides the cipher, or nought.

Figures require a founder's particular care to cast them exactly n-thick, and to a true parallel, as the least deviation, where a number of them come together in table-work, destroys their arrangement, and causes an inconvenience in the justification which the ingenuity of a compositor cannot, without considerable loss of time, rectify.

The excellence of figures does not consist in their having soft and fine strokes, but rather in such circles and lines as bear a proportion with the strength of the face.

The recently introduced fashion of forming the figures so that each one of the ten shall fill precisely the same portion of the shank of the type, and which are called "lining figures," are said in the work by Mr. Stower, to be "an improvement;" and that this shape "adds considerably to their appearance, and to the beauty of the work in which they are used." They have certainly been almost universally adopted: but I cannot assent to such an acquisition of stiff uniformity being of the value thus attached, until every thing in a fount be reduced to the same principle; so

that capitals, ascending and descending, round and square letters, all *line* alike. On the score of the utility of the fashion, I have still stronger objections. In the figures cast after the old manner, or only modernized in the same moderate degree as the roman and italic, there is a relief to the eye, and a help to the reading of them, which is by no means afforded in the modern-cut lining-figures. This is of infinite importance where figures are without any calculations or words to lead to the detection of error, such as in works upon navigation, and particularly in tables of logarithms, which consist of heavy masses, and must be often read by the dim and imperfect light of a ship's cabin, or ward room; and by those not the best able to judge of the distinctions of figures approaching too near in likeness to one another; and where a mistake of a single figure in calculating a ship's reckoning may be of the most fatal consequences. The reason of this argument will be immediately understood by looking at the following specimens, whereby it will be seen how very possible it would be to mistake, either from imperfection in press-work, or paper, or the least inadvertency of the eye, the 3 for 8; 6 and 9 for 0; and *vice versa:* whereas, in the non-lining figures, such mistakes will hardly be possible in consequence of the 5, 6, 8, ascending, and the 3, 7, 9, descending, in line from 1, 2, 4, 0.

1 2 3 4 5 6 7 8 9 0*
1 2 3 4 5 6 7 8 9 0

And for a further specimen of the absurdity produced by these figures, see p. 376.

Printers at one time thought it a great impropriety to use erect figures in italic matter, judging that the obliquity of that character would be intercepted by them, and therefore had figures cast of the same inclination; this peculiarity is but partially attended to in England, though it still prevails in some parts abroad.

Scratched Figures,

1 2 3 4 5 6 7 8 9 0

are used in that species of Arithmetic called Division; the dividing and divided figures being scratched as soon as they have been

* In a page of stereotype, which will be inserted hereafter, this principle will appear very apparent.

adjusted by subtraction and multiplication. Dotted figures,

$\dot{1}\ \dot{2}\ \dot{3}\ \dot{4}\ \dot{5}\ \dot{6}\ \dot{7}\ \dot{8}\ \dot{9}\ \dot{0}$

are also used for similar purposes.

In Decimal Arithmetic they were formerly used to denote the terminating figures of circulating decimal quantities, and also those of repeating decimals: but have of late years been considered as unnecessary in this respect, and are therefore dropped by the generality of arithmeticians.

Of References.

References are those marks, or signs, which are used in a work with side or foot notes, to direct the reader to the observations they may contain on that part of the text to which the reference may be attached, the note having a corresponding mark of reference.

They are variously represented; those generally in use are the

Asterisk . .	*	Section .	§
Dagger . .	†	Parallel .	‖
Double-dagger	‡	Paragraph	¶

In works where the notes are numerous, superior figures and letters ($^{1\ 2\ 3}$, &c. $^{a\ b\ c}$, &c.) are used, as doubling of the common references frequently causes confusion. Italic lower-case letters, between parentheses, are frequently used for references, beginning with *(a)*, and so on to the end of the alphabet.

The Asterisk, the principal of the references, is used in the Roman church-books to divide each verse of a psalm, and show where the responses begin, which in our Common-Prayer Book is denoted by a colon. It is sometimes used to supply the name of a person, in satyrical or libellous works, provided it is well understood who is meant. —— The metal rule is also much used in the same way. It is likewise used to denote an omission, or a hiatus, by loss of original copy, in which case the asterisks are multiplied according to the extent of the chasm.

The Dagger, originally termed the Obelisk, or Long Cross, is frequently used in Roman Catholic church-books, in prayers of

exorcism, at the benediction of bread, water, fruit, and upon other occasions, where the priest makes the sign of the cross. But it must be observed, that it is not used in the above books unless for want of square crosses, ✠, which are the proper symbols; and are used also in the Pope's briefs, and in ordinances and mandates of archbishops and bishops, who put it immediately before the signature of their names. But the square cross is not reckoned among references of which we are speaking.

The Long Cross, or Dagger, is used in genealogical tables, and works of that description, where it denotes the death of a person, or the extinction of a family. Sometimes it serves for a signature to matter which has been either omitted, or else added; and which is intercalated after the omission; but its principal use is by way of reference.

The Double-dagger and Parallel, are considered only as references.

The Section is seldom employed now but as a reference, except in Latin notes, collected from foreign books, which generally abound with citations.

The Paragraph is least used of any of the references, in consequence of its heavy appearance, and the room it occupies, and, except in old bibles, where it was placed to denote the changing of the contents of a chapter, or in common-prayer books, to direct the order of the service, and which is called the Rubric (those lines being formerly printed in red), we may consider it as nearly abolished.

From the foregoing observations it is evident, that the symbols, noticed here as references, were originally designed for other and distinct purposes. It would not be one of the least improvements were other marks devised to supply their place, of a more elegant shape; the superior letters and figures have a neater appearance, could they be kept clear from picks in the working.

OF LOWER-CASE SORTS.

Having already considered the lower-case alphabet, it will be unnecessary to dwell long on this head, we shall therefore merely notice those sorts which have not been already treated of. Those

termed lower-case sorts are, the small letters of the alphabet, double letters, points, the crotchet and parenthesis, spaces and quadrats. Of these i, v, x, l, c, are numeral letters, and are generally used in notes and indexes; the d, and m, are seldom used for those purposes, though their power is not inferior in calculation to capitals, as they are governed by the same rules.

Of Points.

They consist of a comma, semicolon, colon, period or full-point, note of interrogation and note of admiration.

Points are not of equal antiquity with printing (see p. 99), though, not long after its invention, the necessity of introducing stops, or pauses in sentences, for the guidance of the reader, brought forward the colon and full-point, the two first invented. In process of time the comma was added to the infant punctuation, which then had no other figure than a perpendicular line, proportionable to the body of the letter; these three points were the only ones used till the close of the fifteenth century, when Aldus Manutius, a man eminent for the restoration of learning, among other improvements in the art of printing, corrected and enlarged the punctuation, by giving a better shape to the comma, adding the semicolon, and assigning to the former points more proper places; the comma denoting the smaller pause, the semicolon next, then the colon, and the full-point terminating the sentence. The notes of interrogation and admiration were not introduced till many years after.

These points are allowed to answer all the purposes of punctuation, though some pedantic persons have suggested the propriety of increasing them, by having one below the comma, and another between the comma and semicolon. So far are we from imagining that such an introduction will meet with encouragement, that we confidently expect to see the present number diminished, by the total exclusion of the colon, a point long since considered unnecessary, and now but seldom used.

Perhaps there never existed on any subject, among men of learning, a greater difference of opinion than on the true mode of

punctuation, and scarcely can any two people be brought to agree in the same method; some making the pause of a semicolon, where the opinion of others would only place a comma; some contending for what is termed stiff pointing, and others altogether the reverse.

The want of an established rule in this particular is much to be regretted. The loss of time to a compositor, occasioned often through whim or caprice, in altering points unnecessarily, is one of the greatest hardships he has to complain of in his profession.

It is rare, indeed, to meet with a work sent properly prepared to the press; either the writing is illegible, the spelling incorrect, or the punctuation defective. The compositor has often to read sentences of his copy more than once before he can ascertain what he conceives the meaning of the author, that he may not deviate from him in the punctuation; this retards him considerably. But here it does not end—he, and the corrector of the press, though, perhaps, both intelligent and judicious men, differ in that in which so few are found to agree, and the compositor has to follow either his whim or better opinion. The proof goes to the author—he dissents from them both, and makes those alterations in print, which ought to have rendered his manuscript copy correct.

Some compositors do not possess so perfect a knowledge of punctuation as others; to such the hardship becomes greater; the loss of time to them must be very considerable. The author should, in the first instance, send his copy properly marked in every respect. He must be the most competent judge of the length and strength of his own sentence, which the introduction of a point from another might materially alter, a circumstance not uncommon, as instances continually occur where a single point will completely reverse the meaning of a sentence.

The late Dr. Hunter, in reviewing a work, had occasion to censure it for its improper punctuation. He advises authors to leave the pointing entirely to the printers, as from their constant practice they must have acquired a uniform mode of punctuation. We are decidedly of this opinion; for unless the author will take the responsibility of the pointing entirely on himself, it will be to the advantage of the compositor, and attended with less loss of time, not to meet with a single point in his copy, unless to terminate a sentence, than to have his mind confused by commas and semicolons placed indiscriminately, in the hurry of writing, with-

out any regard to propriety. The author may reserve to himself his particular mode of punctuation, by directing the printer to point his work either loosely or not, and still have the opportunity of detecting in his proofs whether a misplaced point injures his sentence. The advantage resulting from this method would ensure uniformity to the work, and remove in part from the compositor a burthen which has created no small degree of contention.

Having considered it our duty to enter thus fully on a subject that so materially concerns the compositor, we will proceed to the points themselves; not with the view of laying down any rule, which we conceive impracticable, but for the purpose of explaining each in its proper order. An uniform and correct mode of pointing must be acquired by the compositor from practice and attention.

The comma, which is considered the first, from requiring the shortest pause, its time being counted as equal to that taken by the reader for the pronunciation of one syllable, is more frequently used, and misused, than any of the other points. Its unnecessary introduction often involves the reader in perplexity; and its omission blends sentences that should be kept distinct—and, in unskilful hands, may pervert the meaning of the author, and render it ridiculous. The most acceptable mode seems to be what is termed *easy pointing*, which certainly has the advantage of not confusing the reader.

The comma, having the first place in every sentence, though, strictly speaking, it may be considered a junior stop, governs the order of all the others; therefore the ready way to uniform pointing is, to acquire a perfect knowledge of this key to punctuation.

Commas are used to denote extracts or quotations from other works, in dialogue matter, or any passages or expressions not original, by inverting two of them, and placing them before the passage quoted, and closing such passage with two apostrophes. These are termed "inverted commas;" and when used, a thick space is sufficient to keep them free from the matter. The method of running them down the sides to the end of the quotation has been found inconvenient, particularly where a quotation occurs within a quotation, or a speech within a speech; the proper method of distinguishing which is, by placing a single inverted comma, and running one down the side till such extra quotation is concluded, which cannot well be done when the double commas

are also run down. Such extra quotation to be concluded with a single apostrophe; or should both quotations close together, put three apostrophes, observing after the first to place a thin space.

Inverted commas owe their origin to one Guillemet, a Frenchman, who, it may be supposed, was no friend to Italic, they being intended to supersede the use of that letter. As an acknowledgment for this improvement, his countrymen call them after his name, Guillemets.

A single comma inverted is used as an abbreviation to the word Mac, in lieu of a superior ^{c}, as in the instance of M'Gowan.

The semicolon is allowed a space of time double that of the comma, and may be considered an important point in punctuation; it enforces what has been illustrated by the comma, and allows the reader an opportunity to acquire a perfect view of the sentence, before it is terminated by the full point.

The colon, whose allowed time is one half more than the semicolon, has been superseded in almost every instance, either by the semicolon, ellipsis line, or metal rule, and in some cases by the comma; neither is its utility in figure-work any longer acknowledged.

The full point is used to terminate a sentence, and its pause is double the time allowed to the semi-colon. It is also used in abbreviations, but then loses its effect as a full stop in the punctuation, unless at the end of a sentence. Some authors, enemies to the introduction of many points, will even omit the semicolon after an abbreviation, leaving the full point an indefinite pause to the discretion of the reader.

Full points are sometimes used as leaders in tables of contents, figure-work, &c. but dotted rules ... or quadrats are much better for this purpose, from their uniform appearance, as they not only supply the place of full points and quadrats, but save considerable time in the composition.

The pause for a note of interrogation is rather longer than that allowed to the full point.

The note of admiration, or exclamation, is placed wherever surprise, rapture, &c. are expressed.

Exclamations are sometimes mistaken for interrogations, and *vice versâ;* care should, therefore, be taken in examining to which of these two variations the one or the other inclines. The Portu-

guese and Spanish typographers guard against this mistake by placing the interrogation, reversed, ¿, at the beginning of the sentence.

All the points, except the comma and the full stop, have a hair space placed between them and the matter, to distinguish them; the comma and full point, not lining with the depth of the face of the letter, do not require any space to bear them off.

The m-metal rule, though it cannot be denominated a point, is frequently used in peculiar works, sometimes as a substitute for the comma, at others for the colon; and is found particularly serviceable in rhapsodical writing, where half sentences frequently occur.

The Hyphen.

To divide words or syllables with propriety is an important part of a compositor's business. It will exercise his judgment, and demands particular attention, as authors must leave the use of the hyphen to the discretion of the printer.

The difficulty that formerly existed as to the proper method of dividing syllables, arose from the controversies in which authors were continually engaged on the subject of orthography. Without being able to establish a criterion, each arrogated to himself the adoption of his own particular mode, to the subversion of uniformity and propriety.

The dictionary of Dr. JOHNSON was looked up to as the highest authority, and the labour of that great man seemed to be crowned with complete success. It silenced those pedantic clamours and divided opinions which distracted the attention of the compositor, and he was able to solve any difficulty by a reference to this excellent standard of English orthography. But an age for improving has rendered it necessary even to improve upon Johnson, and TODD's Johnson, by embracing words newly naturalized in our language, has completed the task of the lexicographer up to the present time. Authors of the present day seldom interfere with what is now deemed the province of the printer: they will generally allow him, from his practice, to be a pretty competent judge of orthography, and therefore not object to his mode of spelling, though it may vary from their own. To the compositor

this is an advantage of considerable importance, as it allows him to observe a system in his spelling, and enables him, at the same time, to acquire the proper use of the division, in which he should be careful not to suffer a syllable of a single letter to be put at the end of a line, as *a- bide, e- normous, o- bedient,* &c. except in marginal notes, which, from their narrow measure, cannot be governed by this rule. The terminating syllable of a word should not be allowed to begin a line, as *ly, ed,* &c. the hyphen being the thickness of one of the letters, the measure must, therefore, be very narrow, or the line very closely spaced, that will not admit the other. A compositor who studies propriety and neatness in his work, will not suffer an unnecessary division, even in a narrow measure, if he can avoid it by the trouble of overrunning two or three lines of his matter.

In large type and narrow measures the use of the division may admit of an excuse; but, in that case, care should be taken that they do not follow each other. In small type and wide measures the hyphen may generally be dispensed with, either by driving out or getting in the word, without the least infringement on the regularity of the spacing. The habit once acquired of attending to this essential point, the compositor would find his advantage in the preference given to his work and the respect attached to his character, from his being considered a competent and careful master of his business. The appearance of many divisions down the side of a page, and irregular spacing, are the two greatest defects in printing.

It is proper, if possible, to keep the derivative, or radical word, entire and undivided; as *occur-rence, gentle-man, respect-ful,* &c.

The hyphen, or division, is likewise used to join two or three words together, which are termed compounds, and consist frequently of two substantives, as *bird-cage, love-letter,* &c.; likewise what are termed compound adjectives, as *well-built house, handsome-faced child,* &c. But compounds are sometimes made of words that were never intended for such; therefore, to acquire a competent knowledge of them does not depend upon fancy, but exercises the judgment in discovering the rise and fall of the tone, which is an adjunct; and whether that and the preceding appellative may not be joined into one word, rather than make a compound of it.

The prepositions *after, before, over,* &c. are often connected with other words, but do not always make a proper compound; thus *before-mentioned* is a compound when it precedes a substantive, as, in the *before-mentioned* place; but when it comes after a noun, as, in the place *before mentioned,* it should be two distinct words.

Divisions are sometimes used in table-work, indexes, or contents; but, like the full point, they are now generally superseded by dotted quadrats; for they will not always come off clear, and frequently cut the paper, unless worked with extraordinary care.

Divisions should not be cast of too thick a body; their principal use is in justifying and correcting, therefore they cannot be too thin to be serviceable: they do not require a very bold stroke, except for spelling-books, for which they are generally cast on purpose.

The two Signs of Intercalation, the Parenthesis and Crotchet.

THE use of the parenthesis is to inclose such words or sentences of a period as make no part of the subject, yet at the same time strengthen the argument; which, however, would read smoothly on were the enclosed matter taken away.

Parentheses are not now so generally used as formerly: authors place their intercalations between commas, which make them equally as intelligible as though they were inclosed between parentheses, and look much neater in print; but where parentheses are used, should a point be requisite to mark the sentence, it is placed after the parenthesis, the intercalation not being reckoned any part of that sentence; as, for instance, *My Lord (said I), I will tell your Lordship,* &c.

Crotchets are so seldom made use of now, that they require little notice: both parentheses and crotchets were formerly used to inclose folios, &c.; but the modern method of putting folios in full-faced figures, unattended, leaves the crotchet scarce a duty to perform; its chief application is in dictionaries, for what are called *lock-up words,* and to enclose references.

The Apostrophe.

The Apostrophe is called a sign of abbreviation, its appearance often ejecting some letter or letters from the word to which it is attached, particularly in poetry, where it often contracts two syllables into one, to give a verse its proper measure; to this the vowel e yields oftener than any other letter, as *alleg'd, chang'd,* &c. Sometimes it cuts off a vowel at the beginning of words, as *'bate, 'scape, 'squire,* &c.; sometimes a syllable, as *'prentice;* but these, and many other abbreviations, are common only in poetical works, and are under the arbitration of the author, who best knows where such contractions serve his purpose.

The monosyllables tho' and thro' are sometimes shortened, but without any appearance of propriety to justify the curtailment, as they retain the same sound, and therefore the apostrophe cannot assist the versification.

The genitive case of the singular number is generally known by having 's for its termination, but is not allowed in the plural.

All quotations, which are denoted by beginning with inverted commas, are closed with apostrophes." There is no space required between the apostrophe and the matter.

Quadrats.

An m-quadrat is the square of the letter to whatever fount it may belong; an n-quadrat is half that size. In the casting of m and n-quadrats, the utmost exactness is necessary; they require particular care also in dressing, for the most trifling variation is instantly discovered, when ranged in figure work, for which purpose they are much used; and unless true in their justification by the letter-founder, the arrangement is confused to such a degree that all the pains and ingenuity of a compositor cannot rectify it. The same observation holds good with respect to figures.

M-quadrats always begin a paragraph, by indenting the first line; it is likewise the proper space after a full point, when it terminates a sentence within a paragraph.

N-quadrats are generally used after the comma, semi-colon, &c.

and sometimes after a kerned letter; but the use of the n-quadrat in spacing must be guided by circumstances.

Two-m, three-m, and four-m quadrats are likewise cast for break lines and white lines, but particularly for poetry, for which purpose they require to be as exact in their depth as the m or n-quadrat, or the matter will stand uneven where a number of them come together.

The inconvenience arising from founts of the same body not agreeing in depth is great, where the quadrats, through necessity, are sometimes mixed. It is a serious evil, and much to be deplored that some method cannot be adopted to check it. A particular work will sometimes require more quadrats than were originally cast to the letter it is done in—recourse is had to the founder, though at the time there may be a sufficiency of the same body, but a different fount, in the house, which do not exactly range, and cannot be used The printer is thus put to unnecessary expense, and, even then, it is a hundred chances to one if they do not get mixed. When they are afterwards used for ranging matter this defect will occasion much trouble and loss of time. This is but a trifling inconvenience, compared with others, some of which we have before noticed. It is astonishing that a system so detrimental and irregular should be permitted.—See p. 388, n.

Reglets, of the same body with the letter of the work, are sometimes used, instead of quadrats, for white lines; but, from being often wetted, are apt to swell, and cannot be depended on; it would be better, therefore, to use space leads, which are cast from 4, 6, and 8 to a pica, and from 4 m's to any length required.

Spaces.

The use of Spaces is, to separate one word from another, so that the reading may appear easy and distinct. To enable the compositor to space even, and to justify with nicety, they are cast to various thicknesses—five to an m, four to an m, three to an m, and two to an m, which may, with propriety, be reckoned among the number of spaces, since they are used in the matter with the spaces. Besides these, there are what are called hair spaces, cast remarkably thin, and found particularly useful in justifying lines and assisting uniformity in spacing.

Rules.

RULES are either brass, metal, or space rules; the first are made by printers' smiths and joiners, out of rolled sheet brass, and the other two cast by letter-founders.

Brass rules ought to be exactly letter-high: if, therefore, founts differ in height to paper, from the regular standard, those rules, accurately made, are rendered useless: for if they are higher than the letter, they come off black and broad; and, besides hindering the adjoining letters from appearing, they cut both paper and tympan. On the other hand, if they are lower than the letter, they do not appear at all, especially if they are thin, and stand between matter without scaleboard at their sides; which, though (in particular cases) they may be left out in Roman letter, yet in mixt matter, or Italic, a scaleboard, at least, is required before and after a thin brass rule, to prevent its touching upon *d, f, l,* at the fore-side, and upon *f, g, j, p, y,* at the hind-side.

Brass rules being commonly cut to the length of sixteen inches, their equality, as to height, from end to end, is not always to be depended on from every one who sets up for a printer's joiner, or brass-rule cutter, and therefore should be tried, which is done by holding the foot, and afterwards the face-side of the whole length upon an even imposing stone, and observing whether light can be discovered between the rule and the stone, which, if it appears, proves the rule faulty, and shows where it drives out in height, and occasions a hollowness in some other place.

The face of rules ought also to be attended to, that it may be of an equal bold, or else tender look, according to the size of the letter or figures with which they are used. But a great difference appears in this particular, when we find it necessary to piece them; a compositor, therefore, when he is driven to this necessity, should endeavour to dress the shorter pieces, by rubbing them on the stone, so as they may appear as one length.

Metal Rules.

METAL RULES, like quadrats, are cast to m's, from the size of one to four, sometimes six m's and sometimes to an n, and are used

in schemes of accounts, to direct and connect each article with its summary contents, where they stand opposite, and distant from each other; m rules sometimes stand for *noughts* in columns of figures.

Metal rules, made to line and join accurately, are very useful, as they serve not only for rectilinear, but also perpendicular progressions, where no other rules are to touch them. But though they have shouldering sufficient to bear off the matter, they require, nevertheless, a scaleboard, or, if it will admit, a reglet before and after them, that they may run straight, and meet with nothing that can throw them out of line.

Sometimes a rule stands for a sign of repetition, in catalogues of books, goods, &c. where it implies *ditto* or *ejusdem*, instead of repeating an author's name, with the title of every separate treatise of his writing: but it must be observed, that no sign of repetition, either *ditto, ejusdem, idem,* or the rule, must be used at the top of a page or column; but that the name of the author, or merchandize, must be set out again at length; and then if their series continues, to denote the continuation thereof, at every article subsequent, by a rule of three or four m's, so as to range, instead of extending the rule to the different lengths of names.

A metal rule likewise stands for *to*, or *till*, as chap. xvi. 3—17. that is, verse three to seventeen. At other times it serves for an index, to give notice that what follows it is a corollary of what has preceded; or otherwise matter of import and consequence.

Space Rules.

Space Rules are not always of the same thickness, though two of them generally answer to the depth of a pearl body. But this is not of so much moment as their being of a neat look, and made to join well; in which case they may be considered valuable sorts. They may be cast to various widths, from one m to six, to whatever body ordered.

Braces.

Braces are used chiefly in tables of accounts and similar matter, that consists of a variety of articles, which would require

much circumlocution, were it not for the method of tabular writing, which is practised in England to greater perfection than in any other nation.

Braces stand *before*, and keep together, such articles as are of the same import, and are the subdivisions of preceding articles. They sometimes stand *after*, and keep together, such articles as make above one line, and have either pecuniary, mercantile, or other posts after them, which are justified to answer to the middle of the brace.

The extreme points of a brace are always turned to that part of an article which makes the most lines.

Braces are sometimes used horizontally in the margin to cut off a chronological or other series from the proper notes, or marginal references, of the work. They are generally cast to two three and four m's of each fount, but can be made larger if ordered. When there is occasion for them larger, *middles* and *corners* are cast, and used with metal rules, so that the brace may include any space required; but the middles and corners, as well as the metal rules, require to be cast with great exactness, that, when joined, they may appear as one piece; their shoulders in dressing should be planed away, so that the beard may not prevent the face from meeting. The difficulty of nicely effecting this has caused some printers, most eminent for their skill and experience in table-work, to form their braces out of brass rule to the exact lengths required for each occurring instance. The indefatigable attention for so many years of the gentleman who has the appointment of printing the Journals and other papers for the House of Commons, to every means by which excellence was to be accomplished, has enabled him to plan and execute some of the most difficult and elaborate tables which our profession can exhibit, in a manner which ranks him with the highest in this beautiful branch of printing: and no work can exemplify more fully the success of employing brass rule in braces than the extraordinary parliamentary tables which he has printed.

Middles and corners are convenient in genealogical works, where they are used the flat way; and where the directing point is not always in the middle, but has its place under the name of the parent, whose offspring stands between corner and corner of the brace inside, in order of primogeniture: but this may also be superseded to advantage by the judicious use of brass rule.

Superiors.

a^a, b^b, c^c, d^d, e^e, f^f. a^a, b^b, c^c, d^d, e^e, f^f.

1^1, 2^2, 3^3, 4^4, 5^5, 6^6, 7^7, 8^8, 9^9, 10^{10}.

As we have already treated of Superior Letters and Figures under the head of References, it will not be necessary to take further notice of them here, than to observe, that they should contain no more than the bare alphabet, without any double letters. Neither ought the j to be used as a reference, on account of its being a descending letter. A larger number should be cast of the first eight sorts, a less of the second, and a still less quantity of the third eight sorts, because it often happens that references begin with ^{a} in every page; though sometimes they are continued to the end of a chapter, or other division of a work, in which case they may run the length of the alphabet. I prefer italic to roman.

The same rule may be observed in respect to superior figures, more of the first five being used than of the others, except the nought, which may be used as a degree in computations estimated by the divisions of a circumference of a circle.

Fractions.

Fractions, or broken numbers in arithmetic, are seldom cast to any other bodies than those of pica, and long-primer; brevier are rather choice, from their great expense, and in the stock of but few offices; however, fractions may be had to any body required. The pica is equal to two nonpareil bodies, and the long-primer to two pearl.

The separatrix, or rule between the numerator and denominator, was formerly joined to the foot of the first: but it is considered that the figures of 3, 4, 5, 7, 9, are thereby cramped, and for that reason it is now cut to run in the top line of the denominating figure, which is a considerable improvement. $\frac{3}{4}\frac{5}{7}\frac{7}{9}$ $\frac{575}{32}$

The goodness of fractions does not consist in their having a small and fine face, so much as in showing themselves full and clear, and preserving due proportion.

Where a fraction happens with large-bodied figures, such as great-primer, and upwards, it is usually set out at length, unless nonpareil figures can be conveniently had, which may be justified with a space, of the same neatness as fractions cast to the body.

Quotations.

QUOTATIONS are cast to two sizes, of unequal squares, which, as they are formed for use, are called *broad* and *narrow*. They require to be dressed and finished with as much care as any other sort, that they may stand true upon all occasions. They vary in size according to the standard of the foundery they are cast at, which is highly improper, as they should be governed by a regular standard as well as every other sort, and to that standard press-joiners ought to cut their furniture; but we are sorry to observe so little attention paid to this important part of the joiner's business, who follow too much in the steps of the letter-founder, and cannot decide on and adhere to a standard gauge for their furniture. This want of uniformity gives the compositor much trouble in making margin, and with all his care a forme will sometimes go to press imperfect in this respect, which is immediately discovered on laying on the reiteration. The pressman has then to unlock the forme in order to make register; from this a dispute will too frequently arise between him and the compositor; and, what is still worse, from frequent unlocking on the press, the pages will suffer some derangement, so that the most skilful corrector's endeavours to send a work perfect to press will be frustrated.

Quotations should not be cast so high as they sometimes are, for no other purpose than to increase their weight; if they are above the height of a quadrat, they will black the paper; and the pressmen, who are generally not very patient in remedying what may obstruct the progress of their work, generally apply to the sheepsfoot, by which means they are rendered useless.

Justifiers are cast for broad and narrow quotations, to all sizes, from double pica to pearl inclusive, for the purpose of ranging the side-note with its proper text; in doing which great care is requisite, especially where there are many in a page.

Two-line Letters.

THEY are cut to all the bodies in general use, and are found extremely useful in titles, the beginning of chapters, &c.

Flowers.

FLOWERS were formerly considered of the first importance; and the ingenuity of the compositor, in forming devices with different kinds and sizes of flowers, was completely put to the trial. Master-printers have now reason to rejoice that the present improved taste in printing has eased them of the burthen of expensive founts of flowers.

They are still used in some of the country towns of England, but principally as borders to titles and cards; letter-founder's specimen-books generally contain an ample assortment, which are cast to all the regular bodies of letter.

Leads, or Space Lines,

form a very important part of a printer's stock in trade, since it is scarcely possible to set up a single page in which they may not be usefully employed; but their chief use is for opening the lines to a regular distance from each other (which will be understood by referring to the explanations of the various sizes of type). They are usually cast by letter-founders in a long mould, and then cut to the required lengths. The bodies are regulated by pica standard, and they are usually cast four, six, or eight to pica; but are occasionally varied from one down to fourteen to pica. The lengths also vary according to convenience; twenty m's pica may be called about the average length for common use; though they are cut to almost every length, in order that, by being combined, they may suit every measure. Lest, therefore, the printer should not be sufficiently versed in the rule of addition, the founders used to be good enough to give a table in their specimens to assist him in computing the proper combinations of his space-linse. I have one

now before me, "A TABLE, Showing how the following Pieces of Metal Space-Lines may be combined to the Length of any Number of PICA m's, from Eleven to Fifty, with only three Pieces in the longest Line; and from Fifty to an Hundred, with no more than Six Pieces in the longest Line;" in which some miraculous results of combinations are shown, beginning with 7 and 4=11, and ending with plain demonstration that five pieces of 20 m's each will make 100!

The great expense of this article in a printing-office made it necessary, as far back in time as the oldest printers can remember, to have recourse sometimes to sheet or milled lead, particularly where leads were required for any unusual measure; or upon occasions where the office was not provided with that particular variety wanted, and time would not allow of the slow process of casting, even when the letter-founder was within reach. The sheet-lead, in such cases, having been procured from the flatting-mill, was cut by the compositors, by hand, with shears. This process was also slow, and uncertain as to the nicety acquired. The mode in common practice of approaching towards accuracy in this expedient was the nailing together by the ends, at equal distances, pieces of broad quotation, cut to the measure required, and scoring the lead through these pieces with the bodkin; and then, with as much accuracy as the hand, eye, and haste would allow, applying the shears, and cutting the lead into pieces and strips, as marked: and this was seldom attempted but in lead of the thickness of about six or eight to pica. The want of accuracy sufficient in the leads thus cut to admit of their being used without the safe-guard of placing n-quadrats at the ends of the lines, and thus, by the regulation of prices of 1793, increasing the expense of the work as if it were an m wider than will appear on paper, and the serious expense of the alternative of providing leads at from 2*s.* 6*d.* (six to pica) to 12*s.* or 14*s.* a pound, induced me to try some experiments with a block of wood, a pair of common shears, and a few sash-screws, to reduce the cutting to some more certain rule, and more expeditious mode of operation. My rough experiments completely succeeded; and having done sufficient to show a proper mechanic what I wanted, with his assistance I completed my little machine (if such appellation do not imply too much for an article so portable and simple) for cutting leads,

space-lines, brass-rule, or other purposes; and of which I here present an engraving.

The stand, or table, represented in the above figure, is about 18 inches long, 12 inches broad, and 9 inches high, and may be made of iron, brass, or thick wood: an old mahogany platten served for the top of mine. The shears are fixed to the front edge of the table, so as to make the blade next it steady and immoveable, by means of blocks screwed through its haft and over the pivot screw; while the other blade, which works on the pivot, has a shank straightened out to receive a wooden handle, and give sufficient power to the operator. Upon the upper surface of the table a parallel motion is contrived, by means of four bars, having screws at the ends, so as to form, when in the position shown in the drawing, a rectangular parallelogram, the two further screws holding that bar parallel to the front of the table in a fixed position, strictly parallel to the front edge of the shears; the other three bars being moveable on the screws or pivots at the corners, so as to admit of the two end bars being brought to any degree of inclination with the further bar, and by which motion the front bar is consequently carried in a parallel direction to any required distance from the front edge of the table, or shears. To the front bar is attached a bolt with a nut and screw; and a groove is made in the surface of the table of such a segment of a circle as to

admit the bolt to pass backwards and forwards freely when the screw is loosened and the parallel put in motion; by means of which screw the front bar is fixed at any chosen distance from the cutting edge of the shears. At a right angle to the edge of the shears is let in, to a level with the surface of the table, a plate of brass, graduated to pica m's, from 4 to 50. Being provided with the lead, flattened to the required thickness, in sheets of any length, and five or six inches broad, let the parallel be set by the scale to the *measure* of the work; say, for instance, 20 m's pica, as shown by the dotted lines; by passing the sheet with the left hand between the blades of the shears, and holding the edge (the rough having been first taken off) firmly against the front bar of the parallel, and applying the right hand to the wood handle of the shears, the piece will be cut to the exact measure; and so proceed, until as many pieces are cut as are judged requisite for the purpose. Then loosening the thumb-screw, the front bar is to be brought forward towards the shears till the whole forms a rectangle, which will be at the mark four m's pica; and each piece of lead which had been before cut to the measure being brought separately into the bite of the shears, and pressed against the front bar (the rough edge being first squared off), and cut through, one after another, until they have all passed through the shears; the leads will have been thus prepared of proper length and width for placing between the lines of the work. From the mark, 4 m, the front of the table is sloped away to allow the leads, as fast as cut, to fall down under the table: and thus a few hours suffice to cut as many leads with undeviating accuracy as it would have taken days to cut them by the former uncertain method; indeed, so admirably does the instrument effect its purpose, that no one can distinguish, by the eye alone, a lead so cut from one that is cast. If, at first using the machine, the eye should not be found sufficiently accurate in squaring off the rough ends before cutting, this operation may be reduced to a certainty by the following easy method: let the front bar of the parallel be brought forward, so as to set it in the rectangular position, and turn the piece of lead to be squared to the contrary side of the shears, then resting the already-cut edge against the other bar of the parallel, and passing the rough end under the edge of the shears, it will be found exactly squared.

In proof of the advantage of this instrument in a printing-office, it is sufficient for me to state that I had occasion, recently, for some leads 6 to pica, of which my whole stock was already in use. Less than 50 lbs. would have been useless—

		£. s. d.
These 50 lbs. at the letter-founder's price, 2*s.* 4*d.*		5 16 8
My machine was put to work on milled lead, which is kept in my stores of various thicknesses, 4, 6, and 8 to pica, which costs me, lead and flatting, $5\frac{1}{2}d.$ per lb.	1 2 11	
Man three hours cutting	1 6	
		1 4 5
Saving, in three hours' work . . .		£.4 12 1

Nor are these leads less durable than the cast leads; and, for the trifling expense of re-melting and flatting, the same metal may, at any time, be renewed for use, so that its value is very little diminished by wear. The compositor also finds them equally useful with cast leads; and by putting a portion of old-type metal in when melting, it may be made to any degree of hardness that the shears will cut.

Another advantage of the machine is its application to table-work. Where any number of brass rules require to be cut to exact lengths, by setting the parallel to the length, and holding the rule firmly on the table, upon the brass scale before mentioned, it may be cut exactly square, and every piece of the same precise length, by which the beauty of the work will be very much enhanced.

A third use is the cutting of cards, when two or more have been worked together to save press-work: and, as a fourth advantage, it is well adapted to the cutting of cast leads down to any measure required.

The best mode of working it in each particular case is acquired by a little practice. Sometimes the article to be cut must be put in from the front, under the edge of the shears, as before described; at other times it is best to feed it by putting in from the back, and pressing the article to be cut with the force of the finger and thumb upon the table while the shears are brought into

action, as the brass and the cards. Hence, without particularizing further, it will be obvious, that, wherever the peculiar action of double-edge cutting is desirable, and the article to be cut requires to be accurately squared, this machine may be successfully and advantageously brought into use.

Mathematical, Algebraical, and Geometrical Sorts.

As these varieties must form part of the stock of every printing-office calculated for general book-work, we shall give them with their names and properties.

The sign + *plus* (more) signifies addition; as 4+2 (read, 4 *plus* 2) means that 2 is to be added to 4.

The sign − *minus* (less) signifies subtraction; as 6−2 (read, 6 *minus* 2) means that 2 is to be taken from 6.

The sign = *equal,* or the result of the above; thus 4+2=6 and 6−2=4, reads 4 plus 2 equal to 6. 6 minus 2 equal to 4.

Let me here guard the young typographer from an error which is frequently fallen into, of considering that, if he does not immediately lay his hands upon the real signs of minus and equal, an m-metal rule, or parallel laid flat, will do equally well; the m-rule is much too long for this mark, and by joining to a previous or following fraction, may alter the meaning of the calculator, with the whole course of the calculation, as thus $\frac{2}{3}$—$\frac{1}{n}$; if that is avoided by putting a space, the distance will be out of proportion—it must be thus $\frac{2}{3}$−$\frac{1}{n}$. The parallel laid horizontally = is a very miserable make-shift for the equal.

ɔ This sign was also formerly used to denote *equal,* but is become obsolete.

× is the sign for multiplication.

: denotes an arithmetical proportion; as, 7 . 3 : 13 . 9; *i. e.* 7 is as much greater than 3, as 13 is greater than 9.

:: is the sign of two equal ratios, and is placed between them; as, 6 . 2 :: 12 . 4; that is, 6 is to 2 as 12 is to 4; or that the ratio of 6 to 2 is equal to that of 12 to 4.

÷ denotes an arithmetical progression continued; as, 19÷16÷13÷10÷7÷4; *i. e.* 19 is as much greater than 16, as 16 is

greater than 13, as 13 is greater than 10, as 10 is greater than 7, as 7 is greater than 4.

∺ denotes a continued geometrical proportion, or geometrical progression; as, 16∺8∺4∺2∺1; *i.e.* 16 is to 8, as 8 to 4, as 4 to 2, as 2 to 1.

□ Quadrat, or regular quadrangle; as, □ AB=□ BC; *i.e.* the quadrangle upon the line AB is equal to the quadrangle upon the line BC.

△ Triangle; as, △ ABC=△ ADC.

∠ An angle; as, ∠ ABC=∠ ADC.

⊥ Perpendicular; as, AB ⊥ BC.

▭ Rectangled parallelogram; or the product of two lines.

√ Radix, root, or side of a square.

$\sqrt[10]{}$ Square root.

⊏, or >, greater than.

⊐, or <, lesser than.

—: The differences, or excess.

These, and several other signs and symbols, are used in mathematical and algebraical works; for different authors use various signs to express the same thing; and, therefore, in mathematical and algebraical works, gentlemen should be very exact in their copy, and compositors as careful in following it, that no alterations may ensue after it is composed, such alterations occasioning great trouble, and consequent expense. Hence it is that very few compositors are partial to algebraical works, preferring plain work, even if less profitable, the composition of such works tending to injure the habit of an expeditious compositor: I can, however, from my own practice, assert that the compositor's business may, in this respect, be rendered much more pleasant and profitable by the contrivance of proper materials.

Celestial and Astronomical Signs.

The SUN is thus designated, ☉.

The characters of the twelve signs of the zodiac.

♈ Aries	♎ Libra
♉ Taurus	♏ Scorpio
♊ Gemini	♐ Sagittarius
♋ Cancer	♑ Capricornus
♌ Leo	♒ Aquarius
♍ Virgo	♓ Pisces.

The characters of the planets of ancient discovery.

♄ Saturnus	⊕ Earth
♃ Jupiter	♀ Venus
♂ Mars	☿ Mercurius.

Those of modern discovery are thus marked :—

♅ Georgium Sidus

⚶ Vesta	⚴ Pallas
⚵ Juno	⚳ Ceres.

The Moon and its changes are thus designated :—

☉ Denotes a new moon	● The full moon
☽ First quarter of the moon	☾ Last quarter of the moon.

The characters denoting the aspects of the planets, thus :—

☌ Conjunctio happens when two planets stand under each other in the same sign and degree.

☍ Oppositio happens when two planets stand diametrically opposite each other.

△ Trigonus happens when one planet stands from another four signs, or 120 degrees; which make one third part of the ecliptic.

□ Quartile happens when two planets stand three signs from each other, which makes 90 degrees, or the fourth part of the ecliptic.

⚹ Sextile is the sixth part of the ecliptic; viz. two signs, which make 60 degrees.

☊ The dragon's head, and

☋ The dragon's tail, are the two points in which, or near to which, the eclipses happen, and also signify the ascending node and the descending node of a planet.

Medicinal Signs.

℞ Recipe	ʒ Drachma
℔ Pound	℈ Scruple
℥ Ounce	ß Half

OF GREEK AND HEBREW.

GREEK.

GREEK is more frequently used in printing than the other peculiar characters; it is, therefore, necessary for every respectable printing-office to be furnished with that type, though not to any great amount of weight; for a quantity sufficient to serve for quotations, notes, mottos, &c. may be contained in a pair of cases, by dividing some of the boxes of the upper case for the accents, and omitting useless letters, ligatures, and abbreviations. This was impracticable when ligatures and abbreviations were in use, for then seven hundred and fifty boxes were required for the different sorts in a fount of Greek. The inducement to the first founders of the art to perplex themselves with cutting and casting so many different abbreviations and contractions was probably a desire to imitate Greek writing, and to produce in type the flourishes of the pen; but what could prompt them to confound themselves with an infinite number of ligatures, cannot so well be accounted for. Greek is, however, now cast almost every where without either ligatures or abbreviations, except where founders have express orders for them. Some few, however, not only grace Greek letter, but are also profitable to a compositor who knows how to use them properly.

Having intimated that the useful sorts of a fount of Greek letter may be lodged in a pair of cases that contain no more than two hundred and seven boxes, a scheme will be presented for that purpose, [See No. 7 & 8] which will afford a fair presumption that a great many of the sorts above referred to must be needless, where their number occupies seven hundred and fifty boxes. It must, however, be observed, that almost three hundred of these sorts have no other difference than that of being kerned on their hind side; for there has been Greek with capitals kerned on both sides. But without saying any thing more on this subject, I shall advert to the single letters of the Greek, and accordingly exhibit the alphabet, in the characters formed by the late Professor Porson.

The Greek Alphabet.

Α	α	Ἄλφα	Alpha	a
Β	β	Βῆτα	Beta	b
Γ	γ	Γάμμα	Gamma	g
Δ	δ	Δέλτα	Delta	d
Ε	ε	Ἐψιλὸν	Epsilon	e short.
Ζ	ζ	Ζῆτα	Zeta	z
Η	η	Ἦτα	Eta	e long
Θ	ϑ θ	Θῆτα	Theta	th
Ι	ι	Ἰῶτα	Iota	i
Κ	κ	Κάππα	Kappa	k c
Λ	λ	Λάμβδα	Lambda	l
Μ	μ	Μῦ	Mu	m
Ν	ν	Νῦ	Nu	n
Ξ	ξ	Ξῖ	Xi	x
Ο	ο	Ὀμικρὸν	Omicron	o short
Π	π	Πῖ	Pi	p
Ρ	ϱ ρ	Ῥῶ	Rho	r
Σ	ς σ	Σῖγμα	Sigma	s
Τ	τ	Ταῦ	Tau	t
Υ	υ	Ὑψιλὸν	Upsilon	u
Φ	φ	Φῖ	Phi	ph
Χ	χ	Χῖ	Chi	ch
Ψ	ψ	Ψῖ	Psi	ps
Ω	ω	Ὠμέγα	Omega	o long

Instead of *αι* improper, *ηι*, and *ωι*, the Greeks write *ᾳ*, *ῃ*, and *ῳ*; the point under these vowels denoting the iota, which, therefore, is called the *subscript iota*.

The Greek vowels admit of two breathings, viz. *spiritus asper* [ʻ] and *spiritus lenis* [ʼ].

Spiritus asper has the sound of an h; and *spiritus lenis* denotes the absence of that sound.

All the words that begin with a vowel have one of these breathings over them; but the vowel upsilon admits of no other than the *spiritus asper* at the beginning of a word.

In diphthongs the *spiritus* is put over the second vowel; as *αὐτὸς*, not *ἀυτὸς*.

The letter *ρ*, at the beginning of a word, has an *asper* over it, as *ῥέω*; and where two *ρ*s meet in a word, the first has a *lenis* and the other an *asper*.

The Greek has three accents, viz. acute [ʹ], which can fall only upon one of the three last syllables of a word.

Grave [ˋ], which must only be placed on the last syllable.

Circumflex [˜], which only occurs on the last syllable and the last but one.

The apostrophe [ʼ] is used for cutting off the vowels *α*, *ε*, *ι*, *ο*, and the diphthongs *αι* and *οι*, when they stand at the end of a word, and the next word begins with a vowel; as, *παρ' αὐτῷ*, for *παρὰ αὐτῷ*; *πάντ' ἔλεγον*, for *πάντα ἔλεγον*.

Sometimes the apostrophe contracts two words into one; as, *κᾀγὼ*, for *καὶ ἐγὼ*; *ἐγῶ'μαι*, for *ἐγὼ οἶμαι*; *κᾀκεῖνος*, for *καὶ ἐκεῖνος*.

Sometimes an apostrophe supplies the first vowel beginning a word; as, *ὦ 'γαθὲ*, for *ὦ ἀγαθὲ*; *ποῦ 'στι*, for *ποῦ ἐστι*. This is chiefly used in poetry.

But the prepositions *περὶ* and *πρὸ* suffer no apostrophe, though the next word begin with a vowel; for we write *περὶ ὑμῶν*, *πρὸ ἐμοῦ*; *περὶ αὐτον*, *πρὸ ἑτῶν*, &c.

The diæresis [¨] separates two vowels, that they may not be taken for a diphthong: thus, *ἀϋτὴ* with a diæresis makes three syllables; but without a diæresis *αυ* is a diphthong, and makes *αὐτὴ* two syllables.

Diastole [,] is put betwixt two particles that would bear a different sense without it; thus, *ὅ,τε ὅ,τι* signify *whatever;* whereas

ὅτε stands for *as*, and ὅτι for *that*. Τό,τε with a diastole implies *and this*, but when without, it answers to the adverb *then*.

The sign of interrogation, in the Greek, is made by a semicolon [;].

The colon, in the Greek, is made by an inverted full-point [·].

Such compositors and readers as are not Greek scholars, and even those who are, but have not paid attention to accents, will do well to bear in mind what has been said above concerning the proper situations of the spirits and accents; as many of the faults which so frequently offend the scholar's eye, might thereby be avoided. The following rules may be easily borne in mind:—No accent can be placed over any other than one of the three last syllables of a word. No vowel can have a spirit, or breathing, except at the beginning of a word. The grave accent never occurs but on the last syllable; and this being the case, the asper grave [Ᾰ] and lenis grave [Ᾱ] can be wanted only for a few monosyllables, and less than half the quantity usually cast would be enough in a fount. Almost every word has an accent, but very seldom has more than one; and when this happens, it is an acute thrown back upon the last syllable from one of those words called enclitics, which, in that case, has none, unless it be followed by another enclitic. In no other case than this can a last syllable have an acute accent, except before a full point, colon, or note of interrogation, when the grave accent on the last syllable is changed to an acute; a circumstance which has often led printers who were ignorant of the reasons for accenting the same word differently in different situations, to think that there was an error in their copy, and thus to make one in their proof. Most errors, however, proceed from those who do not think at all about the matter.

HEBREW.

The Alphabet.

Aleph	א		
Beth	ב		
Gimel	ג		
Daleth	ד		
He	ה		
Vau	ו		
Zain	ז		
Cheth	ח		
Teth	ט		
Jod	י		
Caph	כ	ך	Final Letters.
Lamed	ל		
Mem	מ	ם	
Nun	נ	ן	
Samech	ס		
Ain	ע		
Phe	פ	ף	
Tzaddi	צ	ץ	
Koph	ק		
Resch	ר		
Shin	ש	or Sin	
Thau	ת		

Letters that have a Likeness to others.

Beth	Caph		
ב	כ		
Daleth	Caph	Resch	
ד	ך	ר	
Vau	Zain	Jod	Nun
ו	ז	י	ן
Mem	Samech		
ם	ס		
Gimel	Nun		
ג	נ		
He	Cheth	Thau	
ה	ח	ת	
Teth	Mem		
ט	מ		
Ain	Tzaddi		
ע	צ		

The following five letters are cast broad, and are used at the end of words, viz.

Aleph	He	Lamed	Mem	Thau
א	ה	ל	ם	ת

but are not counted among the final letters, being contrived for justifying, because Hebrew words are not allowed to be divided.

Although the vowel points, in the opinion of the best scholars, are not essential to the language, yet as they are still used in some bibles, and in all works published by Jews, it may be necessary for a compositor to attend to them.

The Masoretic vowels or points are such as are here subjoined, under the consonant בּ, or beth.

1. *The long Vowels.*

Their names are—

Kametz	ָ *aa*	בָּ	baa
Tzeri	ֵ *ee*	בֵּ	bee
Long Chirek	י *ii*	בִּי	bii
Cholem	וֹ *oo*	בֹּבוֹ	boo
Shurek	וּ *uu*	בּוּ	buu

2. *The Short.*

Patach	ַ *a*	בַּ	ba
Sœgol	ֶ *e*	בֶּ	be
Little Chirek	ִ *i*	בִּ	bi
Kametz-chataph	ֳ *o*	בֳּ	bo
Kibbutz	ֻ *u*	בֻּ	bu

3. *Shevas, which imply a vowel to be wanting.*

Simple Sheva	חְ
Patach furtive	חַ
Chataph Patach	חֲ *a*
Chataph Sœgol	חֱ *e*
Chataph Kametz	חֳ *o*

The three last are called compound shevas; and in fact they are only the short vowels, to which the simple sheva (:) is joined.

Of the Relative Proportions of Type.

In conducting a printing business, it will be found of considerable importance to have a ready knowledge of the proportion which one body of letter bears to another; without this, the printer cannot form an accurate opinion as to what size of type should be used for a work which is to be confined to a certain number of sheets; nor will be able to judge of the extent of a work, after *casting off the copy*, unless he be in possession of some regular rule to guide his calculation as to the quantity of copy the type proposed may either get in or drive out.

Various methods have been recommended in works of this nature to arrive at some satisfactory conclusion upon this point, but they do not appear sufficiently clear to be readily understood, and are therefore seldom resorted to.

Among other plans which have been suggested, Mr. Stower is warm in praise of the following :—

"As scales for calculation cannot be constructed on too simple a plan, we flatter ourselves the one represented in the plate will be found to answer its purpose in every respect. The scale is cut in wood, in the manner of a rule, with the sides declining to a feather-edge; each side contains the measurement of two founts, consequently two rules will give the proportions of eight different founts, being all that are in general use. We particularly recommend these rules to the attention of the trade; they are extremely useful, being made with the utmost exactness, and will be found more accurate and convenient than quadrats in casting off matter.

"To ascertain the number of lines in a page, that part of the rule, with the fount on its side with which the calculation is to be made, must be placed lengthways on the matter or printed page, and reversed, in order to know the width or number of m's."

Much pains having been taken by Mr. Stower to furnish, by means of an engraved plate, a scale for this particular purpose, and as the same might be expected in this work, I give the paragraph just as I found it; though I most decidedly object to every argument and recommendation it contains. That it must be very defective every one knows who is aware that founts, nominally the same, vary very considerably; that paper, also, during the several processes of wetting, working, and drying, alters very much its

dimensions; so that the work of casting-up printed pages by these rules, unless they were susceptible of all the contractions and expansions that every contingency requires, can serve no other purpose than to create dissatisfaction in the minds of such employers as may happen to make a difference in the calculation per sheet, by the use of these rules, from the price charged, and involve them in disputes with their printers.

The most simple and effective contrivance for casting-up work is, for every printer to set up, in vertical parallel lines, the m's of each fount in his office, with figures in succession beside them, and work them upon good hard paper, but little wet or pressed, and which ought to be dried very gradually. If he cast-up work printed with the same types as these measures, very little variation will be found: for if the measure and the measured page do vary from the measurement of the m's in metal, the one is compensated by the other. But even this method can scarcely be trusted in settling the price with the compositor, since the difference between a thin and thick space will carry an n quadrat, and that may give the turn in the 500 letters, so as to make 1,000 difference. The scheme in the Appendix will exemplify the method recommended, which has been in constant use not only during the long practice of the writer in his profession; but much earlier by those whose knowledge and experience he is ever proud to refer to as forming the foundation of his own.

Of Casting-off Manuscript Copy.

To cast off manuscript with accuracy and precision, is an essential object, but a very unpleasant and troublesome task, requiring great attention and mature deliberation. Much difficulty and trouble are occasioned by copy irregularly written, containing interlineations, erasures, and variations in the size of the paper; to these irregularities the attention must be closely directed, but they will too frequently baffle the best endeavours at calculation. Such a slovenly mode of sending works to press cannot be too much condemned.

The first thing necessary is, to take a comprehensive view of the copy, and to notice whether it is written even, whether it has

many interlineations, &c. the number of break-lines, and whether divided into chapters and sub-heads, so that allowances may be made in the calculation, to prevent the plan of the work from being afterwards infringed on. These observations should be entered as a memorandum on a separate piece of paper, to assist the memory and save the trouble of re-examining the manuscript.

This preparation being made, take that part of the copy for calculation nearest the general tendency of the writing, and reckon the number of words contained in one line, previously counting a number of separate lines, so that the one adopted may be a fair average; then take the number of lines in a page, and multiply the one by the other, which again multiply by the quantity of folios the manuscript copy may contain, and thus we are put in possession of the amount of the words contained in the work, with as little loss of time and as much accuracy as circumstances will admit; the necessary allowances should then be made for break lines, chapters, insertions, &c. according to the observations previously made on the memorandum.

If the information has been furnished, as to what sized letter the work is to be done in, and what the width of the page, the measure is to be made accordingly, and after composing a few lines of the manuscript copy, we shall be enabled to form an opinion of the number of words which will come into each printed line; then take the length of the page, generally double the number of m's contained in a single line, and multiply the one by the other, which will produce the information previously gained from the adoption of the same mode on the manuscript page; then compare their results, and if the manuscript drive out, multiply the print by a larger number than the last folio of the writing; and so, *vice versâ*, if the print drive out, we multiply it by a less, until we bring the number of words to agree; the multiplier on the printed calculation will shew what will be the last folio of the printed volume, which being divided into sheets according to the given size of the work, it will be ascertained whether it will bear to be leaded, or the chapters begin pages, &c. or whether it must be made up close, the measure widened, the page lengthened, or the size of the letter reduced.

Should the size of the page and letter be left to the opinion of the printer, with no other order than the number of sheets the

work is intended to make, by following the above mode he will be enabled pretty accurately to give his directions—but as it is necessary, on a subject like the present, to be as clear in our observations as possible, we will exemplify what has been laid down. We are supposed to have made our remarks upon the manner of the writing as directed, and we take the number of words in a line of manuscript at 20, the lines in a page at 50; we multiply 50 by 20, which will produce 1,000 words in a page; we then multiply 1,000 by 422, which are supposed to be the number of folios in the manuscript, and we shall find it contain 422,000 words.—The work being printed in pica 8vo, 20 m's measure, and each line containing 10 words, each page 40 lines—the case will stand thus:

Manuscript.	*Printed.*
$50 \times 20 \times 422 = 422{,}000$	$40 \times 10 \times 1{,}055 = 422{,}000$

Having ascertained the number of sheets the work will make, and that number being sufficient for two volumes, they are divided accordingly. But should the author wish to have his work comprised in one volume, it is requisite to be prepared with the sized type and measure which may accord with his inclination. By referring to the preceding scale of proportions, and placing the brevier by the side of the pica body, we find that a page will contain sixty-two lines instead of forty,* and the same difference in the width, which will be one-half more than the former calculation. We therefore multiply 62 by 15 words in a line, one-half added to the 10 in pica, which will give 930 words in a page; multiply that by 454, it will produce 422,220 words; 454 will therefore be the last folio, should the volume be printed in brevier, which will be 28 sheets and six pages.—In works that are to be leaded, the calculation must be made according to the thickness of the lead in the house in which the work is to be printed, as they are apt to vary; though in general three leads go to a brevier; therefore in a work similar to the foregoing we should add one-third for leads, which will drive it out to 604 pages, or 37 sheets, 12 pages, which is more than a volume generally contains;

* See the scale of proportion one body of letter bears to another, referred to in p. 462.

if it should be thought too much, the measure may be widened and the page lengthened.

Another mode of casting off copy, as given in Luckombe and Stower, shall conclude this article.

"After having made the measure for the work, we set a line for the letter that is designed for it, and take notice how much copy will come into the line in the stick, whether less or more than a line of manuscript. And as it is seldom that neither one nor the other happens, we make a mark in the copy where the line in the stick ends, and number the words that it contains. But as this is not the safest way for casting off close, we count not only the syllables but even the letters that are in a line in the stick, of which we make a memorandum, and proceed to set off a second, third, or fourth line, till a line of copy falls even with a line in the stick. And as we did to the first line in the stick, so we do to the other, marking on the manuscript the end of each line in the stick, and telling the letters in each, to see how they balance against each other. This being carefully done, we begin counting off, each time, as many lines of copy as we know will make even lines in the stick: for example, if 2 lines of copy make 3 lines in print, then 4 make 6, 6 make 9, 8 make 12, and so on, calling every two lines of copy three lines in print.

"In like manner we say, if 4 lines make 5, then 8 make 10, and so on, comparing every four lines of copy to five lines in print.

"And in this manner we carry our calculation on as far as we have occasion, either for pages, formes, or sheets.

"The foregoing calculations are intended to serve where a line of print takes in less than a line of copy, and therefore where a line of print takes in more than a line of copy, the problem is reversed, and instead of saying, if 2 lines make 3, we say, in this case, if 3 lines of copy make 2 lines in print, then 6 lines make 4, 9 make 6, 12 make 8, and so on, counting three lines of copy to make two lines in print. In this manner we may carry our calculation to what number of pages, formes, or sheets we will, remembering always to count off as many lines of copy at once, as we have found they will make even lines in the stick. Thus, for example, if 5 lines make 7, the progression of 5 is 10, 15, 20, &c. and the progression of 7 will be 14, 21, 28, &c.

"In counting off copy after this manner, we take notice of the

breaks; and where we judge that one will drive out, we intimate it by a mark of this ∠ or this [shape; and again, where we find that a break will get in, we invert the mark thus 7 or thus]. And to render these marks conspicuous to the compositor, we write them in the margin, that he may take timely notice and keep his matter accordingly.

"We also take care to make proper allowance for heads to chapters, sections, paragraphs, &c. and mention in the margin what depth of lines is left for each, in case their matter varies in quantity.

"In examining the state of the copy, we must observe whether it has abbreviations, that we may guard against them in casting off, and allow for them according to the extent of the respective words, when written out at length."

Each of these modes has its distinct advantage: but, after all, no satisfactory result can be attained, nor bookseller, nor author, be fully aware of the appearance his work will have, unless a specimen page be set up according to the calculation; and then, by a revision of the figures something may probably be produced satisfactory to all parties.

I have never yet seen any means pointed out by which those interested might be enabled to form an opinion upon this matter, without going through the troublesome calculations which have so perplexed all works upon this subject. I have therefore ventured upon the calculation of some tables for this purpose, by which any one may, without further trouble, see the effect of every sized type or page, as compared with another: these will be inserted in the appendix.

Observations on Composing.

Having arrived at that part of the work which will be more particularly addressed to the tyro in the art, it will be proper, in the first place, to offer a few observations on the position of the body which he should habituate himself to, on his first introduction to the frame and cases. This does not appear to have been thought of sufficient importance to claim the attention of former

writers on the compositor's art, yet so great are the evils which result from beginning with improper position and mechanical habits, that it will require a perseverance rarely maintained to correct them, if once formed.

The most usual results of a want of attention on the part of those under whose care the tyro is brought up, are knock-knees, round shoulders, and superfluous or time-losing motions of the body, head, or arms. More particular mention will be made of these defects in the instruction of a compositor in the progress of this chapter.

The standing position of a compositor should be perfectly upright, without stiffness or restraint; the feet firm on the floor, heels nearly closed, and toes turned out to form an angle of about 45 degrees. The head and body should be kept perfectly steady, except when moving from the roman to the italic case, the operations of distributing and composing being performed by the various motions of the arm, from the shoulder joint alone; and if, to reach a box placed in the further part of the cases, to put in, or take out a letter, he should incline the body by a slight motion, he should immediately resume his erect position. The height of a compositor and his frame should be so adjusted, that his right elbow may just clear the front of the lower case by the a and r boxes, without the smallest elevation of the shoulder joint, his breast will be opposite the space, h, and e boxes. Sitting to his work should only be permitted on particular occasions, and then his stool should be a small piece of board, fastened to a single leg: resting the whole weight of the body upon one leg, while the other foot is on the bottom of the frame, must be strictly avoided, as a deformity of the legs will be the certain consequence; if fatigued by walking previous to beginning work, he should rather take the stool for a short time, than resort to the means above mentioned for relief. There are, undoubtedly, circumstances under which it may be necessary for a compositor to be much on his stool,—lameness, weakness, old age, or other infirmity; but, in the absence of these excuses, an habitual sitter I should call an habitual idler: that which at first going to case may appear fatiguing to the novice, or (which I have much oftener found) to the mistaken apprehension of the parent, habit will render familiar and easy; a perseverance in conquering a little fatigue will be amply repaid by the reflection

that it will prevent all the evils of knock-knees, round shoulders, obstructed circulation of the blood, and respiration of the lungs, and though last, not least, habits of idleness.

The question still remains undecided with many masters, as to the most proper part of the business that should first engage the attention of the learner; various methods are adopted, each following the mode he thinks best. Sorting of pie is generally the first employment, and afterwards to set it up in lines, which unquestionably gives him a strong insight into the nature of his business, makes him acquainted with the different sizes of type and the method of composing, and prepares his understanding for the comprehension of whatever direction may be given him when put to the case. The next step will be, to teach him the manner in which the type is laid in the cases: this is usually done by furnishing him with a scheme of a pair of common cases upon the plan adopted in the office in which he is to receive his education; there is sometimes a slight variation in different offices, but the schemes which here follow will be amply sufficient:—

Nos. I. and II.—A pair of cases laid upon the old principle of the double and treble letters dependant upon the long ſ. I have lately seen some works in which this fashion is restored, particularly from the Oxford University Press. It will be a long time before the eye can become familiarized to what has been so long disused, particularly in the case of using two figures to denote the same sound, and still more so when the exploded form resembles another letter so closely, as to be easily mistaken, if in the least imperfect either in casting or printing, so that the reader or speller must be put to the consideration of what the other letters of the word indicate to be its meaning, before they can tell whether it is ſ or f. However, the long ſ has one advantage—it saves a little space; and where three or four sss occur in a close-spaced narrow measure, will frequently prevent the same words coming into the line which the long ſ would have admitted, and this may be of some consequence in Bibles and Prayer Books.

No. I.—UPPER-CASE.

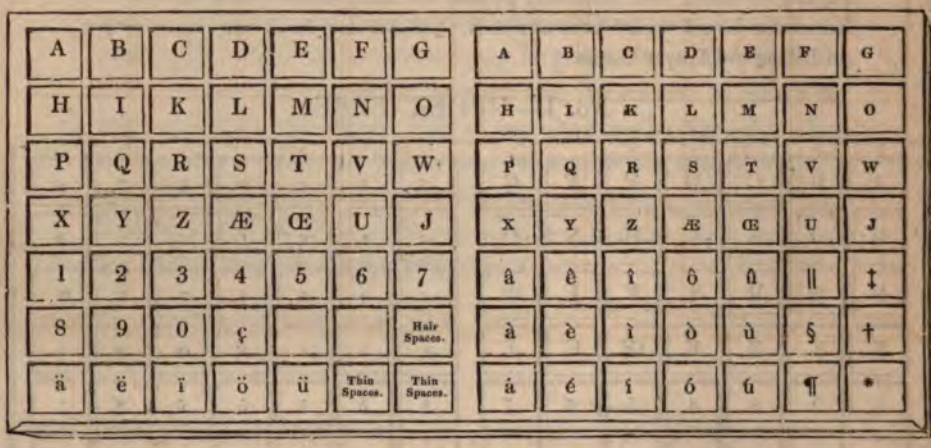
A	B	C	D	E	F	G	A	B	C	D	E	F	G
H	I	K	L	M	N	O	H	I	K	L	M	N	O
P	Q	R	S	T	V	W	P	Q	R	S	T	V	W
X	Y	Z	Æ	Œ	U	J	X	Y	Z	Æ	Œ	U	J
1	2	3	4	5	6	7	â	ê	î	ô	û	¶	‡
8	9	0	ç	Hair Spaces.	ſb	ſk	á	é	í	ó	ú	§	†
ä	ë	ï	ö	ü	ſt	k	à	è	ì	ò	ù	‖	*

No. II.—LOWER-CASE.

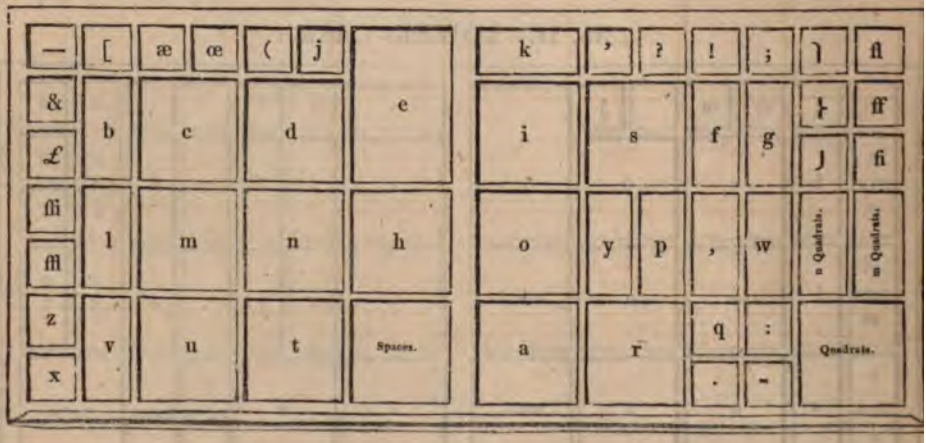
ct	[	æ	œ	'	j		s	(	?	!	;	ſl	fl
&	b	c	d		e		i	f	f	g	ſh	ſſ	ff
ſſi												ſi	fi
ſſi	l	m	n		h		o	y	p	,	w	m Quadrats.	m Quadrats.
ſſl													
z	v	u	t		Spaces.		a	r		q	:	Quadrats.	
x										.	-		

Nos. III. and IV.—A pair of cases without the double, &c. letters, in which the boxes which those sorts used to occupy are appropriated to sorts of frequent recurrence in composing, which formerly were laid intermixed with those of the less frequent demand, as æ œ ! ?, &c. or kept in separate cases. The only alteration in the form of the lower case to suit the round s, was the cutting away the bar betwen the f and f, to make one square box of the s, moving the f to the place of the g, the g to the place of the ſh, and bringing the k from the upper case to the place of the s.

No. III.—UPPER CASE.

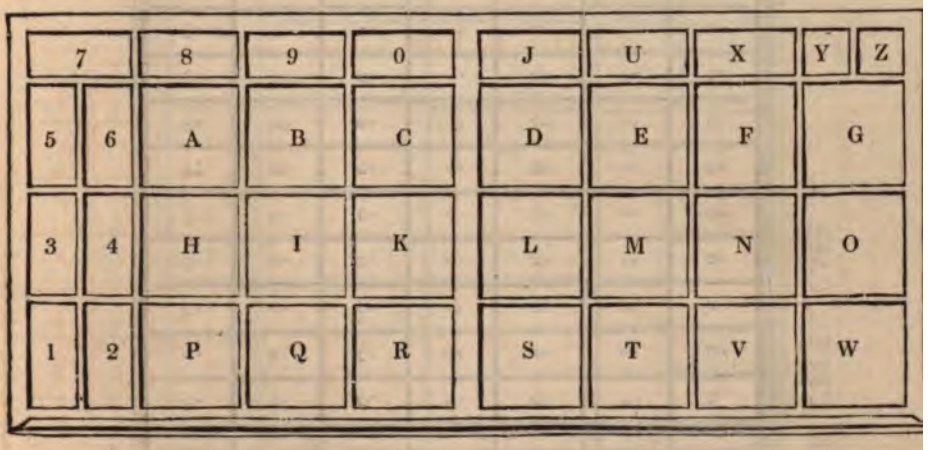


No. IV.—LOWER CASE—*Present Plan, by cutting out the bar.*

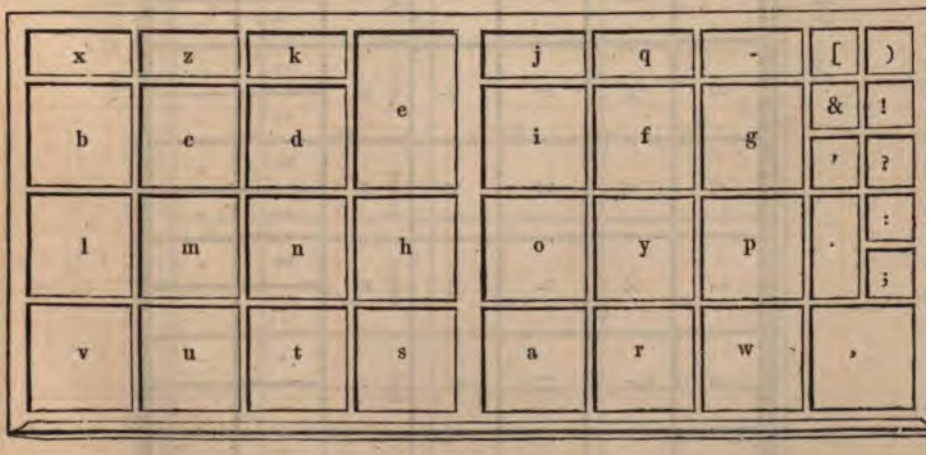


Nos. V. and VI.—A pair of fount cases, in which to deposit the superfluous capitals, lower case, and figures.

No. V.—FOUNT UPPER CASE.



No. VI.—FOUNT LOWER CASE.



No. VII.—GREEK UPPER CASE.

Α		Β		Γ		Δ		Ε		Ζ		Η		ά	ὰ	ᾱ	ἁ	ἀ	ἅ	ἃ	ᾰ	ἇ	ᾶ	ᾷ	Ᾰ	ἄ	ἆ
Θ		Ι		Κ		Λ		Μ		Ν		Ξ		έ	ὲ	ε̄	ἑ	ἕ	ἕ	ἓ	ἔ	ἒ					
Ο		Π		Ρ		Σ		Τ		Υ		Φ		ή	ὴ	η̄	ἡ	ἠ	ἥ	ἣ	ἤ	ἢ	ῆ	ῇ			
Χ		Ψ		Ω		ϗ		ᾳ		ῃ		ῳ		ί	ὶ	ῑ	ἱ	ἰ	ἵ	ἳ	ἴ	ἶ	ῖ	ῗ	ϊ	ἵ	ἷ
ϛ		kerned α		kerned η		kerned ω		kerned ᾳ		kerned ῃ		kerned ῳ		ό	ὸ	ο̄	ὁ	ὀ	ὅ	ὃ	ὄ	ὂ					
ϟ	ϡ	ϡ̄	ϡ́	ϡ̀	ϡ̋	ϡ̂	ϡ̆	ϡ̊	ϡ̃	ϡ̄				ύ	ὺ	ῡ	ὑ	ὐ	ὕ	ὑ̂	ὔ	ὖ	ῦ	ῧ	ϋ	ὕ	ὗ
ʹ	ʹ	ʹ	ʹ	ʹ	ʹ	ʹ	ʹ	ʹ	ʹ	ʹ	ʹ	ʹ	ʹ	ώ	ὼ	ῶ	ὡ	ὠ	ὥ	ὧ	ὤ	ὦ	ῶ	ῷ	ϋ	ὥ	ὧ

No. VIII.—GREEK LOWER CASE.

				Thin Spaces.	σ	ς	ψ		ῥ̓	ῥ̔
ϐ	β	γ	δ	ε	ι	η	ϑ	θ	φ	χ
κ		λ	μ	ν	ο	π	ρ	ϱ	n Quadrats.	m Quadrats.
ξ	ζ	υ	τ	Spaces.	α	ω	, / .	: / -	Quadrats.	

No. IX.—A COMMON UPPER CASE FOR HEBREW.

מ	ל	כ	י	ט	ז	ו	ד	ד	נ	נ	ב	ב	א
ש	ר	ק	צ	פ	ס	נ	ט	ח	ז	ז	ה	ה	ד
			ע	ש	ש	ש	מ	ל	כ	כ	י	י	ט
י	∾	׳					פ	פ	נ	נ	ש	מ	מ
ם	ל	ת	ה	ה	א	א		ק	ק	צ	ש	צ	פ
״	°	׳	׳	׳	ך	°	ו	ו	ת	ת	ר	ר	ר
׳	׳	׳	׳	׳	ך	ן	א	א	ב	נ	ד	ה	ה

No. X.—A CASE FOR HEBREW.

ד		ן	ף	ץ	א	ה	ל	ם	ת
א	ב	ד	ה	ו	ח		נ	ז	ט
י	כ	ל	מ	נ	ס		פ	צ	n Quadrats. / m Quadrats
ע	ק	ר	Spaces.	ש	ת		ם / .	:	Quadrats.

XI.—A CASE FOR HEBREW WITH POINTS.

The spaces and quadrats in the boxes on the left-hand side of this case, are for justifying the points.

LORD STANHOPE'S CASES.

In my advertisement to this work, the manuscript of lord Stanhope has been alluded to. It is already known that he had turned his attention to various improvements in printing, and among others, to an alteration in the top of the letter f, which was intended to lead to the rejection of most of the double letters remaining in use, and to the introduction of other double letters, which he proposed to call *logotypes,* that is, word-types. As these could not have been adopted without a new division of the cases, his lordship had also devised what he considered the best arrangement for the purpose. His object in all this was, to facilitate the business of a compositor; and I am of opinion that it would be a decided advantage to both master and compositor were it to be at once generally adopted in all new founts. The plan of the upper-case is particularly eligible.—I am in possession not only of the original manuscript before mentioned, but also of a stereotype plate bearing this imprint, 'Stereotyped by earl Stanhope, Chevening, Kent.' This relic of the Chevening Foundry I have the honour of here presenting to my readers, followed by his lordship's explanation :—

STANHOPE COMPOSING CASES.

UPPER CASE.

					☞	‖	X	Y	Z	1 m dash	2 m dash	J	U
					¶	‡	P	Q	R	S	T	V	W
					§	†	H	I	K	L	M	N	O
X	Y	Z	2 m brace	3 m brace	J	U	A	B	C	D	E	F	G
P	Q	R	S	T	V	W	3	6	9	[ ]	on		!
H	I	K	L	M	N	O	2	5	8	( )	of		&
A	B	C	D	E	F	G	1	4	7	0	to		?

Galley-ledge

LOWER CASE.

z x	re	an	e	f	g	in	v
j k							
b	c	d		th	h	se	w
l	m	n	i	o	s	; :	m space
p						,	n space
y	u	t	Thick and middling spaces	a	r	. Thin space	Quadrats
Apos. q						Hair space - Hyp.	

PECULIARITIES AND ADVANTAGES OF THESE CASES.

First. The nine logotypes now in use are omitted. They are proposed to be printed with separate types, thus: ff, fi, fl, ffi, ffl, &c. instead of ff, fi ,fl, ffi, ffl, &c. And the Italic thus: *ff*, *fi*, *fl*, &c. instead of *ff*, *fi*, *fl*, &c. In 20 pages of Enfield's Speaker, (namely, from page 71 to 90, both inclusive,) those logotypes occur only 95 times, viz.

PRESENT LOGOTYPES.

ff	fi	fl	ffi	ffl	Æ	Œ	æ	œ	Total,
28	51	10	4	2	0	0	0	0	95.

Secondly. Eight new logotypes are introduced. Their regular and frequent occurrence expedite the process of composition in a very considerable degree; for, in those same 20 pages, the new logotypes would save to the compositor no less than 3073 lifts, viz.

STANHOPE LOGOTYPES.

th	in	an	re	se	to	of	on	Total,
771	441	413	385	291	279	264	229	3073.

Thirdly. The introduction of the new logotypes, and the great imperfection of the various existing arrangements of composing cases, have caused the above new and very superior arrangement to be adopted.

Fourthly. The front side of each box of the lower case is made sloping, instead of upright; which shape is convenient both to the view and to the hand of the compositor, and it enables him to lift the types with the same rapidity and ease when the boxes are nearly empty as when they are full. The types are much better preserved from wear, by means of this shape. It also allows the lower case to be made deeper than usual; so that, two of them contain as much as three lower cases on the old construction. At the bottom of each box of the upper case, the internal front arras is filled up.

The saving of time is of immense importance, especially in all cases where dispatch is particularly required. The new cases are, by experience, found to save full *one day* out of *six* to the compositor.

Fifteen boxes on the left-hand side of the upper case are represented empty. They are intended for the sorts which are sometimes used for particular works; such as, accented letters, mathematical marks, &c.

As the asterisk, or star, [*] is very liable to be filled with ink at press, it is intentionally excluded from among the reference-marks.

Stereotyped and Printed by EARL STANHOPE, Chevening House, Kent.

"I have deemed it advisable to contrive a new pair of composing cases, making a new arrangement of the types in the boxes, introducing a new set of double letters, which I denominate logotypes; and rejecting altogether the double letters ff, fi, fl, ffi, ffl, ſt, ct, formerly occupying room in the cases, but used so seldom that they might rather be considered as retarding than forwarding the work of the compositor.

"My object, in this matter, has been, to afford the best means for the compositor's comfort in composing, combining therewith the greatest attainable expedition. Upon first looking into this part of the business, which naturally fell under my observation, I was forcibly struck with the result of some examinations which I caused to be made, in order to ascertain correctly the frequency of the occurrence of the several different types in composition. Those examinations pointed out, that the double letters ff, fi, fl, ffi, ffl, Æ, Œ, æ, and œ, were so little used in composition as to occupy room in the composing cases unnecessarily; I therefore resolved on getting rid of them; and resorted to the adoption of a slight change in the shape of the letter f, to keep the dot which forms its top from overhanging and being broken off by ascending letters. Man is so much the child of custom, and so much the implicit admirer of fancied beauty, that I believe if the human body generally was very round-shouldered, and if the head projected considerably beyond the chest, it would, in such a case, be deemed a deformity to see a man with an upright body, and carrying his head erect. Having this opinion upon so weighty a subject, I was not surprised to meet with objectors to the proposed alteration in the shape of so humble a servant of literature as the letter f: readers had been so long accustomed to meet her with a downcast head, apparently too weighty to be supported by her feeble neck, that she failed in meeting with a welcome reception in assuming the appearance of strength by carrying her head upright. Let us put the two together. Now I do not say that though the beauty of the letter be diminished by the change, yet that, in consideration of the advantage attendant upon the change, we should reconcile ourselves to it; but I say that, independent of every other view of the matter, the f which I introduce is of a preferable shape, in look alone, to the f which I discard. I can easily conceive that many fantastical flourishes which are given to

some letters in old printed books, had their admirers when these books were first published; but it would be difficult for any person now to succeed, if he were to undertake to show their superior beauty, and insist upon their restoration to use. I shall not hesitate in being for once a prophet, and foretel that when the f which I insist upon introducing has become common in books, the f now admired will be condemned solely because of its comparatively inelegant shape.

"I also found in the case certain boxes still retained for the use of other double letters, viz. the ſb, ſk, ſt, ſſ, ſl, ſi, ſſi, and ſh. Within a few years, however, this class of double letters has nearly been laid aside, and it is to be hoped will be completely so, as the much more elegant method of substituting the round s has now universal approbation. Seeing that the disuse of these letters left a considerable portion of the case unoccupied, I proposed another arrangement, so as to fill that part of the case which lay most conveniently to the compositor's hand, with the types which occur oftenest in composition; and to do this the more effectually, I resolved on getting rid also of the double letters which still remained, viz. fi, ff, fl, ffi, ffl. This I accomplish by a slight change in the shape.

"I have said thus much on the f, because it has stood in the way of the improvement which I planned, by occupying with its numerous relatives, considerable portions of the composing cases.

"Although I condemn all the above double letters, as inelegant and useless, as occupying, to the inconvenience of the compositor, a considerable part of the area of composing cases, as loading founts with sorts which sometimes remain new when the fount is generally worn out; as burthening the type-founder with the expense of punches and matrices from which he might be entirely exonerated; yet I am led to view another sort of double letters in just as favourable a light as those appear the reverse. For, by the examination which I directed to be made, I found that in 20 pages of Enfield's Speaker (namely, from p. 71 to 90) all the double letters which I proposed to exclude occurred only 95 times; whereas, I found that in the same 20 pages, the letters *th* occurred together 771 times, *in* 441, *an* 413, *re* 385, *se* 291, *to* 279, *of* 264, and *on* 229; making a total of 3073 lifts saved to the compositor. This decided me that those logotypes should be

introduced into the new plan of the composing cases; and, after due deliberation, I fixed upon the following as the most advantageous mode of arrangement:

"It will immediately strike the eye of an intelligent printer that there are other alterations from the common arrangement, besides what were rendered necessary by the exclusion of improper double letters; he will particularly notice where I have put the capitals, the small capitals, and the figures; in the arrangement of all which I believe I have been swayed by the clearest conviction and soundest reasoning. I have put the first row of capitals in the front of the case, instead of being at the very back, continuing them backwards, and terminating them, as formerly, in the middle row. There appears to me to have been something so extremely absurd in beginning them at the back row of the case, that I wonder the compositors did not consult among themselves and apply to their employers for permission to make another arrangement. I am informed, but I should suppose so without such information, that frequent accidents occur to compositors when they have to pull out of a rack the upper case, to get to the sorts contained in it. Why has not this long ago induced another arrangement? It is exceedingly wonderful, that the experience of misfortune should not have led intelligent persons to a remedy so evident and so very beneficial to themselves. I propose this, as well as the other changes in the case, with perfect confidence that, when adopted, I shall have the thanks of every compositor who shall contrast and reflect upon the difference of arrangement.

"In my new upper case I have put a galley ledge over the third row of boxes. I do not propose putting the galley, as usual, towards the right-hand end of the case, for I occupy that neighbourhood with useful sorts, that is, sorts which may be often wanted in composition; but I propose placing the galley on the left-hand side of the case, which I therefore represent as empty boxes, leaving them to be filled when occasion requires, with accented letters, or other unusual sorts. This quarter of the case is evidently that which requires the most awkward motion of the compositor, if he has occasion to go there to take types out of the boxes, and therefore the most proper to be generally left unoccupied with types. I consider the figures to be fully as well arranged as formerly, easily to be remembered, and better placed

in being so compactly together. The small capitals undergo the least change as to arrangement; this is, however, clearly improved, inasmuch as their first row, that most used, is entitled to be brought nearer to the compositor than the last three letters of the alphabet, which are, in comparison, so little used."

OF CASES AND FRAME.

An upper case and a lower case, together, make what is technically called "a pair of cases." [See page 407.] They are each made similar as to length, breadth, and depth; viz. 2 feet $8\frac{1}{2}$ inches long—1 foot $2\frac{1}{2}$ inches wide—and, generally, $1\frac{1}{8}$ inch deep. The outer frame of each case is about three-quarters of an inch broad, in order that the ends of the several partitions which form the cells, and which are made of more slender strips of wood, may be let into its substance. The hithermost side is about half an inch higher than either of the other sides, so that when the galley, or another pair of cases are set upon them, they may rest against that higher ledge, and not slide off. Both the upper and lower cases have a partition, one inch broad, dove-tailed into the middle of the upper and under rail of the frame, to divide each case into two equal rectangles; and grooves are made on each side of it, to correspond with certain other grooves in each end, in order to admit the ends of those partitions which divide the cases lengthways: and the bottom board is well nailed to this partition as well as to the outer frame of the case. The pieces or strips of which the several cells are formed, are about the thickness of an English body. Each half of the whole length of the upper case is divided into seven equal parts; and its breadth containing also seven like divisions; the whole upper case is consequently divided into ninety-eight square boxes, whose areas are all equal to one another. But the two halves of the lower case are divided in length into eight equal parts, and its breadth into seven; but instead of the partitions being continued throughout, as in the upper cases, there are four several sizes of boxes, so arranged that the largest may be conveniently seated for the compositor's hand, because the European languages run most upon the particular letters to which the large boxes are appropriated. The number of boxes in the lower case is

fifty-four, the arrangement of which will be at once exemplified by the schemes of cases; and the engraving in p. 408, will show the manner in which, when used, they are placed on

The Frame,

of which no further description than a reference to the engraving, p. 408, will be necessary to enable any joiner to make one.

The Galley

is a simple instrument made of three-eighths inch board, generally mahogany, with two elevated sides, not quite so high as quadrat height; their size varying for octavos, quartos, folios, &c. In the engraving, p. 408, there is one represented lying upon the bottom board of the frame.

The Imposing Stone

is made of marble, Purbeck, York, or any other stone that will take a flat and smooth face: the harder it is the better; and therefore marble, possessing this quality in a greater degree, and its pores being closer, is preferable to either of the others. It should be mounted upon a strong frame, and bedded with saw-dust, plaster, or paper; and its face should lie about 3 feet 2 inches above the floor. The frame under the stone is commonly fitted up with draw-boxes to contain quoins, reglet, furniture, lead, &c. &c. The usual size of the stone is 4 feet 8 inches, by 2 feet 3 inches, those dimensions being sufficient to hold a sheet of royal.

Letter Boards

are of an oblong shape, 2 feet 2½ inches long, by 1 foot 10 inches wide, and 1¼ inch thick, for demy—for royal, 2 feet 4 inches long, by 2 feet wide. The upper side is planed very flat and smooth; and the under side is clamped with pieces about two inches square, dove-tailed into the board cross-ways, about four inches from each end, as well to keep it from warping as to bear it off the stone or

bulk; or to admit of one board standing over another without touching the letter which may be upon the under ones.

Furniture, Quoins, Reglet, Scaleboard, &c.

includes head-sticks, side and foot-sticks, gutters, back-sticks, reglets, quoins, &c. which are made with dry wainscot, quadrat high. The gage of the furniture is by quotations, beginning at narrow-quotation; then broad-quotation; broad and pica; double-narrow; double-broad; &c. &c. All below narrow-quotation is named by body of letter; as, two-line great primer; two-line english; english; and down to pearl; which is followed by scaleboard of two kinds, thick and thin. All furniture and reglets are supplied by the printer's joiner, in lengths of a yard each, by the dozen yards.

Side-Sticks

are the fixed wedges to lay against the sides and feet of the pages when they are about to be made fast in the chase, as mentioned in the general description, p. 412. They are usually made with, from three-quarters to an inch, shoulders; the sharp angle is generally taken off from the bevelled ends: and both these and quoins are made to about quadrat height. The wear of side-sticks is so great from continual locking-up and unlocking, as to have induced the experiment of using metal ones. Brass has been tried for the purpose, but it proves too soft and expensive; and cast-iron is found too heavy. In order to obviate the main objection against the use of the latter metal, I have had recourse to grooving out the upper and under sides of the stick until the hollows nearly meet at the larger end, passing gradually towards each surface at the smaller point; the face, or that part which lies in contact with the type, being filed perfectly flat, they are found to answer many valuable purposes, and are calculated to save expense. The engravings will, I think, serve to explain what is meant in this description, as well as what I have to state concerning

The Gutter,

which is made after the same principle, and still further lightened

by two entire perforations of considerable length. It will be evident to those at all acquainted with the art, that the iron furniture can only be applied to works of a regular size: and perhaps it is to large demy octavos and royals that they are most particularly appropriate, as the wood, when used in works of this nature, will soon, by the immense pressure at one time, absorption of lye and water in washing and laying up, then lying loose to dry, imposing again, and going again and again through the same routine, cause a defect in register—in the running heads —in the sides of the pages, and in the exact parallelism of the lines—which can never happen in a judicious use of the metal furniture.

A, is the common wood side-stick; B, the improved hollow iron one; C, the improved hollow gutter.

Quoins.

I still make use of wooden ones; and think, if they are properly used, no substitute is wanted. They are the moving wedges that fasten up the pages in a chase; and upon the manner in which they are used, chiefly depends not only the safety, but also the fair and straight standing of the matter in a forme. Their shape is irregular, having three of their sides truly squared, and the fourth slanted or bevelled to correspond with the degree of inclination or slope of the side-stick against which they are to act, the square side of the quoin running against the parallel side of the chase as the other presses the side-stick, when the shooting-

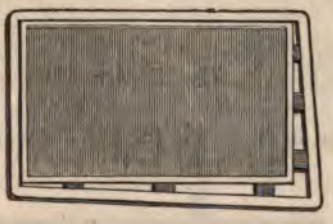
stick is applied to the end to force them forward to a proper tightness. This peculiarity of shape will excuse the giving an engraving of what may, at first view, appear a trifle.

Chases.

A chase may be described as a rectangular iron frame, for containing the pages which form one side of the sheet. The usual size for demy is about 2 ft. 2 in. long, by 1 ft. 9 in. broad, the rim being three-quarters of an inch wide, by five-eighths of an inch deep, and set so flat as to bear equally upon the imposing-stone on all the sides and angles; the inside requires to be filed perfectly straight, square, and smooth. There are two cross-bars to every perfect chase, called the long and short crosses: the short cross is about three-quarters of an inch in width; the long one, three-eighths of an inch. A dove-tail, filed away upon a bevil, from the under to the upper side, forms each end of these crosses, so as to make the under side of each dove-tail narrower than the upper side. These dove-tails are fitted into four dove-tail mortises filed in the rim, each of which divides its side into two equal parts upon the inside; and each is made wider on the upper side than on the under, so as to fit the corresponding dove-tails of the crosses, and prevent them from falling through to the lower side. Similar mortises are also made about 2½ inches from those in the long sides of the chase; and also, 2¼ inches from those in the short sides—the former for shifting the short cross for imposing twelves; and the latter for shifting the long cross for imposing eighteens. As the crosses when placed in the frame must intersect each other in which position soever they are put, one is lapped into the other by notches filed half through each, at such points as correspond to the mortises in the rim, and so that they may stand precisely at right angles one to another, at either place of intersection. In the middle, between the two edges of the upper side of the short cross, are made two grooves, parallel

to the sides, beginning at about two inches from each end, and extending to about five inches in length towards the middle of the bar; which grooves are about a quarter of an inch wide, and about three-eighths deep; and are made to receive the points from the tympans. A chase cut for twelves and eighteens, as thus described, is represented as standing against the bulk end of the frame, p. 408.

Chases made purposely for broadsides have no crosses or dove-tail cuts, but must be broader in the rim to give all the resistance possible to the locking up. For a work of unusual dimensions, where it was necessary to contrive every possible means for gaining room even upon a double-demy press, I devised a plan for saving both the space, weight, and expense of side and foot sticks (which for such a purpose must have been made of iron), by forming a chase having two sides of irregular angles, the other two being at right angles, so placing only a reglet for the quoins to run against; the irregular sides of the chase forming the inclined planes to give the pressure against the type; which the following diagram will better explain.



The Shooting-Stick

is made of box-wood, which is the only material yet found sufficiently hard and tough to endure the action of the mallet and quoin, with the least injury to either; and, which is of still more consequence, causing the least damage to the imposing-stone. Its form is that of a perfect wedge, about one-and-a-half inches broad, and eight inches long; its thickness at the top being also about one-and-a-half inches, gradually declining to the lesser end, at which its thickness is about half an inch. The rapid wear of shooting-sticks made of box-wood, has induced the frequent trial of iron as a lasting substitute: but the still more rapid wear occasioned

by this material to the quoin, mallet, and stone, has more than counterbalanced the advantage in durability of iron shooting-sticks. Still, it is frequently necessary in order to unlock the small quoins when driven up to the top shoulder of the side-stick, to use a sharper point than any box-wood shooting-stick can well be dressed to, or retain after a day's wear. For this purpose, and to remedy the inconveniences above mentioned, I have one at each stone made with a brass toe, and a socket to admit the box handle. Two angular notches are cut in the toe, having a projection between them at such a degree of angle as to catch the quoin at right angles on its top and side; the whole shooting-stick being held in the usual position for the action of the mallet: and one side of the toe is filed away, at its side, still more than the other, to admit of its encountering the smallest description of quoin; all which will be seen illustrated in the engraving.

The Planer

is of beech, grooved in each side for the more sure handling by the compositor.

Shears, Sponge, Bodkin, Page-cord,*

are each equally necessary, but can need no description.

Brass-rule

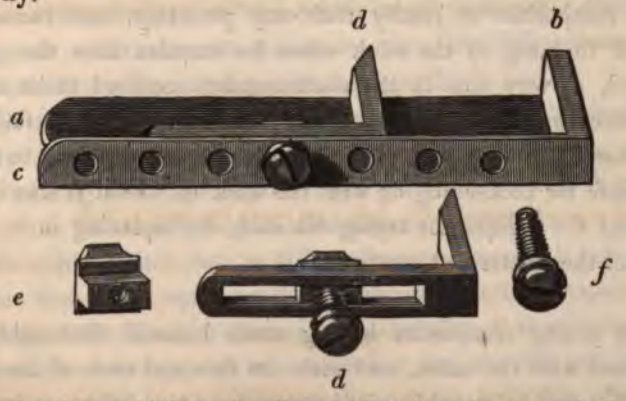
is another essential article of consumption in every printing-office. This is usually supplied, ready cut to type height, and bevelled to a fine sharp face, by printer's joiners; although some smiths have of late years pretended to be *superior* makers of this

* See the representation of one sticking on the frame, p. 408.

article. It is furnished in lengths of sixteen inches, at per dozen lengths. It is cut out of rolled sheet brass of various thicknesses: but the usual substance, when orders are not particularly given, is a sheet 4 feet 2 inches, by 16 inches, weighing 8lbs., from which it increases to sheets of 10lbs. 12lbs. &c. It is a very delicate article to face properly; and may be had single-face; double-face, which usually has one thick line and one thin; or treble-face, of any required thickness; as minion, nonpareil, brevier, long-primer, &c. The vertical lines in table-work—lines across the heads of pages—short double lines to divide or ornament the pages—engraved ornament rules—and all similar insertions, are made with brass-rule.

A Composing-Stick

is the only instrument or tool with which a compositor has to provide himself at the outset; and which, with due care, will last him the whole of his life. To make this little instrument quite perfect requires a great deal of mathematical nicety: I shall therefore mention a few of the usual defects in order to give the printer a better opportunity of directing an artist to execute the instrument perfectly.



a is the plate, which is of polished plate-iron, brass, or bell metal, usually from seven to ten inches long, and from one-and-a-half to two inches wide; *c* is the flanch, turned up from the plate at right angles, and is five-eighths of an inch high above the plate, through which are holes at about an inch distance from each other to

receive the screw; *b* is the head, which is the same depth as the flanch, but much stronger, fastened by rivets, dove-tails, or brazing, to the plate and flanch; *d* is the slide, having an opening in the lower leg, or part which rests against the flanch, to admit the tenon of the nut *e*, which is shouldered to fit into its groove; and which nut is to receive the screw *f*, on its being passed through one of the holes in *c*, to fasten the slide to any measure; which is done by means of the groove in the slide being moved backwards or forwards on the screw and nut, and by the screw being used at the hole convenient to the required distance, so as to set the slide at the point wanted from the head *b*.

The most usual defects in this instrument are in the slide and head not being perfectly square to each other, and each to the plate. Where this occurs in the distance from *d* to *b*, it will be evident that the lengths of the lines composed will vary: that is, the first line and last line in the composing-stick will not be exactly equal in length to one another as they ought to be. This is technically called the *justification* of the lines: and if this is defective, every *stickful*, as emptied in the galley, will present unequal pressure to the furniture; and which scarcely admits of a remedy when once *set up*. Another defect in the slide and head often occurs from their not being square, or at right angles to the flanch at the back of the plate. This makes it extremely difficult for a compositor to justify with any precision, and causes the matter to hang in the stick when he empties into the galley. Indeed, so very nice is the workmanship required to be in the construction of every part of a composing stick, that a fall from the cases, or other accidents, may have so deranged it as to render it unsafe for proceeding on with the work for which it was in use, without the compositor *trying his stick*, by replacing in it a few lines of the matter last composed.

The young compositor having made himself thoroughly acquainted with the cases, and with the face and nick of the letter, that he may be capable of distinguishing the difference between the b and the q, the d and the p, the n and the u, &c. he is generally put to composing, the person under whose care he is brought up working by his side, in order to give him immediate instruction.

It would be departing from the customary routine, if the subject of composing were here considered; it shall, therefore, be introduced in its more proper place, and give room to some observations on the method of

Laying of Cases.

This implies filling them with the sorts of a new fount of letter.

Being provided with fount cases (plans of which, according to the improved mode, are annexed), the weight of the fount is ascertained, and a number of cases filled according to its extent. Each box should be moderately filled with its proper sort; the fount case may then be supplied, and what remains over put into coffins, and placed away in baskets, or any other convenient receptacle, to be ready when wanted.

New letter being more liable to stick, after being wetted, than any other, should be sprinkled with strong soap water, which has been found to answer the purpose of preventing this unpleasant circumstance.

The advantage resulting from the improvement in the fount cases, must appear obvious. The old plan was attended with many inconveniences; the boxes being deep, it became difficult to get the sorts out of the smaller ones, and not being much longer or wider than the common cases, the difference in depth did not allow sufficient room for the superfluous sorts.

By making the fount cases longer and wider, the boxes are enlarged, and as spaces and quadrats are kept in drawers, and the long f being now generally exploded, the parts allotted to their use in the fount case may be otherwise appropriated.

The capital fount case is differently constructed; it but seldom occurs that either small capitals or accented letters require more room than the common cases supply, therefore, it is only necessary to provide a case capable of containing the capitals and figures; a common-sized case will answer the purpose, with this advantage, that the boxes being larger contain not only a greater number of each sort, but are more readily taken out than in smaller boxes.

Of Distributing.

As the disposition of sorts differs almost in every printing-office more or less, it follows, that such irregularities must have their natural effects; of which we do not want for instances. The first that offers itself to our observation is the loss which a compositor sustains every time he changes his place of work; for, being unacquainted with the situation of each sort, he cannot distribute with his accustomed facility and despatch—an inconvenience which might be easily prevented were establishers of new houses to follow a uniform method.

Other evils result from this want of uniformity, which particularly affect the master. Some compositors, rather than charge their memory with the different situations of particular sorts, transpose them into such boxes as contained them at their last place of work, and the transposed sorts not being replaced, the boxes become receptacles for pie; for the right sorts being distributed at top, the undermost are rendered useless, because they are not expected to lodge in quarters that were not assigned them; therefore, if the hidden sorts happen to run short, they must be re-cast.

It would be the means of preserving a pair of cases clean, were they filled and provided with letter for a new compositor to begin his work upon, that, by composing first, he might acquaint himself with the contents of his boxes, and be the better prepared for distribution; but as few compositors feel inclined to quit the beaten track, and as a difficulty would occur in compelling them to leave the cases as they found them, or if they did leave them full of letter, they might distribute it carelessly, knowing they would not have to set it out again, the evil might be still far from being remedied; therefore, those masters who take upon themselves the responsibility of deviating from general plans, must abide by the consequences that inevitably follow.

The foregoing observations, however, apply with much force to the impropriety of permitting a young beginner to distribute before he has made himself acquainted with the boxes, as well as the letters, which he cannot acquire in a more ready manner than by first learning to compose.

University of Michigan

He should be cautioned not to take up too much matter at a time, for, should he break his handful, he will have the more pie to clear. Even to those who are not likely often to meet with this accident, the caution is not unnecessary, as too great a weight weakens the wrist, and it is a mistaken notion that it gains time, for if one handful fall into the case, the time lost one way will be more than equivalent to the time saved another. When the accident does take place, the pie should be cleared away before any thing else is done.

In taking up a handful, the head of the page should be towards the distributor, which prevents the trouble as well as danger of turning it round, in order to have the nick uppermost. So much matter should only be taken up at a time, as can be conveniently held in the left hand, and not to be higher than the thumb, which guards the ends of the lines from falling.

He should be careful not to throw the letters into the case with their face downwards, as it batters them; neither should he distribute his case too full, for it invariably creates pie.

He should not be impatient to acquire a quick method at first; his principal study should be propriety, though his progress be slow; that attained, expedition will follow from practice, and he will find his advantage in composing from a clean case, though he may be longer in distributing it. A man loses double the time in correcting that he imagines he saves from quick distribution.

With many compositors much time is unnecessarily lost in looking at the word before they distribute it. By proper attention in the learner he may avoid this, and become, without the appearance of hurry, an expeditious as well as clean distributor. To attain which, we would recommend him never to take more letter between his fingers than he can conveniently hold, and, if possible, always to take an entire word; to keep his handful on an inclining position, so that the face of the letter may come more immediately under his eye. By proper attention and practice he will become so completely acquainted with the beard or beak of the type, as to know the meaning of the word he takes from his handful, with the cursory view he may have of it, while in the act of lifting it.

It is to this method that so many in the business are indebted for their expedition and cleanness in distribution; though to an observer the movement of their hands appears but slow. It is not to velocity of movement that compositors are indebted for their expe-

dition, either in composing or distributing—it is to *system*, without which their attempts may have the appearance of expedition, but produce only fatigue from anxiety and false motion: therefore, to system we would particularly call their attention, and as clean distribution produces clean composition, which not only saves time at the stone, but acquires them a respectable name, they cannot be too attentive to that part of their business.

Another material point before distributing is the well laying up of the forme. In this particular many compositors are shamefully remiss, and from this negligence arise inconveniences by which they lose more time than if they had taken the first trouble, besides the unpleasantness of working with dirty letter.

The letter-board should always be kept clean, and the bottom as well as the face of the forme well washed before it is laid on the board and unlocked, for if any of the dirt remain from the lye brush after it is unlocked, it will sink into the matter instead of running off. This precaution taken, the pages should be well opened, and the whole forme washed till the water appears to run from it in a clean state. A forme cannot be well laid up without plenty of water. If the forme appears particularly dirty, it is best to lock it up again, which works out the filth; then rinse the bottom of it and proceed as before. The letter once washed perfectly clean, by care may be kept so afterwards with little trouble.

Many compositors keep a piece of alum in their cases, in order to contract the grain of the skin of their fingers when distributing slippery letter; this is a declaration of their want of cleanliness, for had they washed their letter properly, it would not be slippery.

It is sometimes necessary to dry the letter at the fire after distributing; it is particularly recommended not to use the letter after it is in this way dried till it is perfectly cold, as very pernicious effects arise from the antimony, which the heat of the fire brings into action, when joined to the tender particles of the skin; nor to stand near the case, either while at the fire, or until completely cool. The noxious vapour which arises is so easy to be perceived that it must alone be sufficient warning of the effects: it is the only part of the business that has any thing injurious to health, and being entirely at the choice of the compositor, he, for his own sake, ought always to avoid it as a pestilence, which will equally affect his respiration and his sinews, by the former instantly

affecting his lungs, and the latter causing contractions of the fingers. It is always better, where it can be conveniently managed, to distribute at night, or before meals, so that the letter may dry without artificial heat.

Of Composing.

Composing is a term which includes several exercises, as well of the mind as the body; for when we are said to compose, we are at the same time engaged in reading and spelling what we are composing, as well as in taking care to space and to justify the matter. But that we may observe some method in our remarks, we will begin with what immediately precedes the composition.

When the copy of a work is put into the hands of the compositor, he should receive directions respecting the width and length of the page; whether it is to be leaded, and if with white lines between the breaks; and whether any particular method is to be followed in the punctuation and in the adoption of capitals. If the copy be a re-print, he will observe whether there be any difference between the type he is about to use and the copy, so that his spacing may not be affected, against which he must take the necessary precautions at the time, by widening or lessening his measure, if solid matter, or driving out or getting in each paragraph, if leaded. He should select a close-spaced line from the copy, which will at once prove the variation, if there be any. These instructions being given, the compositor will make his measure to the number of pica m's directed, which is done by laying them flat-ways in the composing stick, and then screwing it up, not too tight, as that is apt to strain it, nor so slack as to allow the measure to give. He then fits a setting rule to the measure, and his case being supplied with letter, he is prepared for composing.

It is necessary to observe that all measures are made to pica m's, though the work may be printed in a different sized type; and that all leads, &c. are cast to pica m's, which standard being abided by, leads can always be kept for any measure.

Having taken notice of the state of the copy, and received his directions, the compositor begins his work; and here we would particularly call his attention to those rules by which he may compose with accuracy, ease, and expedition. As we before observed, an ill-habit once acquired is with difficulty shaken off. The variety of motions exhibited by some compositors are truly ludicrous; such as nodding the head, agitating the body, throwing out the arm, ticking the letter against the case or the setting rule, with many other false movements, which not only lose time, but fatigue the mind and exhaust the body. The swift movement of the hand is not the criterion of a quick compositor. A gentleman, some few years back, not a professed printer, though the proprietor of an extensive printing concern, gave orders to his overseer to discharge a compositor who had not the appearance of moving his arm so quick as others in the office with him; but his overseer was able to convince him that this man was not only the neatest, but the most expeditious, and, consequently, the most valuable, man in his employ.

In composing, the left hand, which contains the stick, should always follow the right, which takes up the letters. If the left hand remain stationary, much time is lost in bringing each letter to it, and traversing a greater space than necessary; the eye should always be fixed on the nick of the letter, before the finger is ready to take it up; this will effectually prevent any false motion, as it may be lifted and conveyed to the stick in its proper position. A sentence of the copy should, if possible, be taken at one time, and while putting in the point and space which concludes that sentence, the eye is at full liberty to revert again to the copy for a fresh one. It is to perfection in this particular that those compositors who are so much admired in the business are indebted for their swiftness. The time they gain is considerable, without any appearance of bustle or fatigue. By thus taking into the memory a sentence at a time, they preserve the connexion of their subject, which renders the punctuation less difficult.

From habit the compositor becomes so well acquainted with the peculiar feel of each type, that he can generally detect a wrong letter without looking at it. Those who are careful in distribution, find the advantage of it in composition. The greatest disgrace that can attach to a compositor is that of being considered a

foul or slovenly workman—to avoid which should be his earnest endeavour; it would be even better to read every line as he composes it, than to lose so much of his time at the stone, independent of the disgrace attached to a man of this description. We would recommend him to cast his eye over the line as he justifies it; this method, properly acquired, will not detain him in his work, but will enable him to be much more accurate.

Uniformity in spacing is an important branch of the compositor's business, requiring care and judgment, and ought to be particularly impressed on the mind of the young beginner. Close spacing is as unpleasant to the sight as wide spacing, and ought never to be allowed except in very narrow measures; and frequently, even then, with care, it might be dispensed with. What is commonly termed the thick space, which is one-third of the body of the type, is the best and proper separation between each word; though this cannot always be adopted in narrow measures, with large letter. It is not merely necessary to have a line here and there uniformly spaced—a careful compositor will be anxious to give to every page that uniformity of appearance which is one of its chief excellences. Careless and foul compositors will never preserve this desirable uniformity; for when their proofs are crowded with corrections, the utmost care in rectifying those blunders will not make the spacing regular. We must therefore press on the mind of the young beginner this important maxim—That it is better to do little, and to be determined to do that little *well*, than to be anxious to put together a great number of letters, without any regard to accuracy and uniformity. Authors should send their copy, *finally* corrected, to the press;* for when alterations and additions are made in the proof sheet, it becomes difficult, where there are few paragraphs, to make the spacing equal.

Many compositors, in correcting, do not overrun the matter, as they ought to do, in the stick, but on the stone, and frequently hair-space or treble-space a line, in order to get in or drive out a word; when, by overrunning a line or two, forward or backward, they might preserve uniformity.

The different sized spaces in a fount of letter have been already noticed; it is only necessary to observe here, that the n-quadrat and hair-space should be kept apart; the others, viz. the thin,

middling, and thick spaces, are generally mixed together, as there is less trouble in justifying by taking them up at random, than when they are all kept separate; for should there be occasion to alter a thick space to the middling, or *vice versa*, it may be necessary to change them all, in order to make the line even, when, by taking them up as they occur, there is the greater chance of justifying the line regularly, with the least loss of time.

Where a line is even spaced, and yet requires justification, put the additional space between those words of the line where it will be least observed, viz. between a d, and an h, which being perpendicular letters, will admit of the addition, but not in a greater degree than a middling and thin space to a thick-spaced line; or, after a kerned letter, the beak of which may bear upon the top of a perpendicular, as the f and the h.

The same rule should be observed where it may be necessary to reduce the spacing of a line: less space is required after a sloping letter than a perpendicular one, and even after a comma; though in regular spacing all points should have an n-quadrat after them, except the full point, which should have an m-quadrat, as terminating a sentence.

Spaces are cast to such a regular gradation, that no excuse can be offered on the part of the compositor for irregular spacing.

Having made these preliminary and most essential remarks, we shall proceed. Should the length of the page be left to the discretion of the compositor, he sets so many lines as he conceives a fair proportion, which is generally considered as double its width, then places the head and direction line (if any) to it, and cuts an exact gauge. This is done before he makes up the first page, as that will vary according to the different founts there must necessarily be in it.

Head-lines are generally set in small capitals of the same fount, or in italic. Capitals of letter about two sizes smaller than the body of the work, with folios of a larger face, have a much neater appearance than either of the foregoing. If only folios are placed at the top of the page, it is better to make use of full-faced figures, a size or two larger than the work, without parentheses or crotchets.

Direction words at the bottom of the page are now generally dis-

used; the omission of them does not injure the appearance of the work, but saves time and expense where overrunning occurs in the proof; nevertheless, in making up the page, it is necessary to substitute a white line for holding the signature, volume, &c. Also, in twelves and eighteens, two white lines should be added to the page, one for the signature and the other for convenience, in case of outs or additions from the author; but it should be observed, that the extra white line must be allowed in the gauge of the furniture, but not cast up in the price of the page.

Compositors formerly experienced much trouble and loss of time in making up the first page of a work, by introducing heavy head-pieces formed of different-bodied flowers. This taste for flowery decorations is deservedly exploded, and it is now only necessary to set the title of the work in a neat type. The setting of titles must depend on the fancy and ingenuity of the compositor, under general directions from the master, and therefore no fixed or certain rule can be laid down for this purpose.

The compositor will also receive directions, when there are notes, what letter they are to be set in. The usual rule is for the notes to be two sizes less than the text of the work: thus, to pica work, long primer—small pica, bourgeois—long primer, brevier.—Side notes are usually smaller in proportion; and when the work is of the nature of bibles, law-books, &c. in which the side notes, or references, frequently drive down more than the lines of the text to which they refer, the expedient of cut-in-notes must be resorted to. This is a difficult part of a compositor's business, and requires much skill and patience to adjust all parts, so that every line of note and text may have proper and equal bearing. The reglet, scaleboard, or lead, which is placed between the lines of matter and the side-note must be cut with as much nicety as possible to the length of the text, as far as where the note is to run under; and having accurately adjusted, by means of the quotations and justifiers, the situation of the first line of the note, such lead, or scaleboard, is added to the text as will make it precisely correspond in depth with the lines of note that stand on the side before turning: the remainder of the note is then set in a long measure, to correspond in width with the text, reglet, and side-note; and the page is made up with note, or the text begun again after the note is

finished. In bibles with notes and annotations, in law books, some classics, and other works, it frequently happens that a page exhibits several of these alternate frame-works of note and text, which, if done well, display a workman's skill to the best advantage; but if done at all ill, nothing exhibits a more vile appearance.

The compositor should be acquainted, on beginning a work, whether it is to consist of more than one volume, that the first page of each sheet may contain the volume to which it belongs, in the left hand corner of the signature line. Signatures are generally set in small capitals; and where they run through the alphabet, the best method is, to begin the second alphabet with 2 A, 2 B, and so on.

The title, preface, &c. of a volume is always left till the body of the work is finished, as many circumstances may alter the author's original preface, date, &c. or the work may conclude in such a manner as to admit of their being brought in at the end, in order to make a complete sheet, which may save both paper and press-work. For this reason it is customary to begin the first sheet of every work with the signature B, leaving A for the title-sheet. To a sheet of octavo two signatures are all that are necessary, they are placed to the first and third pages; to a sheet of twelves, three signatures, which are placed to the first, third, and ninth pages, in the following manner: B, B 2, B 5; B 3 and B 4 being supposed signatures.

In magazines, and works of that nature, printed in half sheets, figures are sometimes put instead of letters, for signatures. This plan is adopted in many respectable houses. It is less liable to cause confusion with the binder, particularly in works of five or six hundred pages.

Instead of beginning the work with a two-line, or larger letter, sunk down for the first two or three lines, a letter two or three sizes above the work is much neater, and now generally used. It is placed with its body rising above the line, yet at the same time exactly ranging with the beard of the bottom of the line; the remainder of the word following this letter may be set either in capitals or small capitals.—See p.

We now proceed to the second page, and set the running title in

a neat letter, according to the plan before-mentioned, although it must, in a great measure, be governed by the quantity of matter necessary to be introduced at the head of the page. A full line as a running title has a clumsy appearance, and should be avoided, if possible. To a solid page, two leads make the usual white after the head; to a single-leaded page, three leads, or a long-primer white; and to a double-leaded page, a pica white.

It has long been, and still is, a practice too prevalent among compositors, to drive out a word at the close of a paragraph, or even to divide it, in order to reap the advantage of a break line. Part of a word, or a complete word, in a break line, if it contain no more than three or four letters, is improper. It should be the business of the corrector at all times to notice this encroachment. The last line of a paragraph should not on any account begin a page, neither should the first line of a paragraph come at the bottom of a page, if the work has white-lines between the breaks. To obviate which, the compositor may make his page either a line short or long, as most convenient, only taking care that the page which backs it corresponds, so that the page may not have the appearance of differing from its proper length.

If the work is very open, consisting of heads, whites, &c. the compositor must be particularly attentive to their depth; so that though the whites may be composed of different-sized quadrats, yet that their ultimate depth shall be equal to the regular body of the type the work is done in; for unless care is taken in this particular, the register of the work must be incomplete. The pressman cannot make the lines back if the compositor is not careful in making up his matter.

The first line of a new paragraph is indented an m-quadrat, of whatever size the letter of the work may be. Authors vary very materially in the mode of making paragraphs; some carry the argument of a position to a great length, before they relieve the attention of the reader; while others break off almost at every place that will admit only of a full point. But in this case we follow the author's plan, unless, upon particular occasions, it may be necessary to multiply or reduce the breaks in the copy, if it can be done with propriety, in order to make the work look uniform. Authors should always make the beginning of a new paragraph conspicuous to the compositor, by indenting the first line of it far

enough to distinguish it from the preceding line, in case it should be quite full.

Many hints, in addition to what have already been dropped, relative to composing, might be added for the information of learners, were we not persuaded that practice and a close attention to the mode of doing business by good workmen, will be of more service to them than a multiplicity of rules. It is the duty of the person under whose tuition an apprentice is placed, to discharge that trust with fidelity. The youth's future prospects in life depend in a great measure on the principles on which his first instructions are formed; and it is the duty of every man to correct those habits in youth which may be improper, whether arising from carelessness or any other cause. When a youth makes choice of a profession, and is aware that his future support and prospects in life must depend on a correct knowledge of that profession, he should be anxious to attain that knowledge; but to withhold it from him, or to allow the practice of improper habits, is, in his preceptor, a neglect highly reprehensible, as it is unjust.

After the body of a volume is completed, the Contents sometimes follow next, though they belong more properly to the beginning of the work; and for this reason we shall defer speaking of them here, and introduce them in their proper place. The Index is generally placed at the end of the volume, and set in letter two sizes less than that of the work, or even less, according to circumstances; it is always begun upon an odd, or right-hand page. Running titles may be set to an index, but folios are seldom put to them, unless it is to recommend the book for its extraordinary number of pages; for as an index does not refer to its own matter by figures, they are needless in this case. The signatures, however, are always carried on regularly to the last whole or half sheet of the work.

It was formerly the plan to set the subject word of each article in the index in italic, and all the rest in roman, indenting all the matter an m-quadrat that makes above one line, which is technically termed—to run out and indent, but the italic is now in a great measure exploded, it being attended with extra trouble, and at the same time destroys the uniformity of the page.

Care should be taken that the subject words are ranged alphabetically, as it is not expected that the compositor will transpose

his matter afterwards, which is attended with loss of time, without being paid for it.

Where figures have a regular succession, a comma is put after each folio; and where their order breaks off, a full point is used. Thus, for example, after 5, 6, 7, 8, commas are put; and after 12. 16. 19. 24. full points; but to save figures and commas, the succession of the former is noticed by putting a rule betwixt the first and last figures, thus, 5—8. Again, if an article has been collected from two pages, the folio of the second is supplied by *seq.* or *sequente:* and by *sqq.* or *sequentibus,* where an article is touched upon in different succeeding pages. A full point is not put after the last figures because it is thought that their standing at the end of a line is a sufficient stop. Neither is a comma or a full point placed at the last word of an article, in a wide measure and open matter; but it is not improper to use a comma at the end of every article in narrow columns, or where figures are put after the matter, instead of running them to the end of the line.

At the conclusion of the index the volume is considered as completed, with the exception of the title, preface, &c. A compositor's first consideration, then, is in what manner the work has ended, what number of pages the titles, &c. will make, and whether he can impose them in such a form as to save paper or press-work. To answer this purpose, a preface may be driven out or got in; or, if matter is wanting, it is customary to set a half-title.

The method of setting or displaying a title-page is governed entirely by fancy; and in this country the style is much altered for the better, of late years, as a comparison between the title-pages of the last and the present century will fully prove. No fixed rules for instruction on this head can be laid down, as it depends so much on the taste and ingenuity of the printer, and the words which are given him to work upon; we shall, therefore, recommend the learner, as a help or guide to him in this part of his business, to refer to such printed titles as are considered neatly executed.

Authors should endeavour to make their title-pages as short and concise as possible; for a crowded title never can be displayed with elegance or taste.

The dedication generally follows the title, and seldom exceeds

one page. It should be set in capitals and small capitals, displayed in the manner of a title: but where it extends to a considerable length, it is generally set in a letter two sizes larger than the work. There is neither folio nor direction line required to it, where it does not exceed a page; but if it happen to be the third page of the sheet, the signature must be inserted. The French Manual gives very particular directions upon this head, "When a book is divided by several different titles, we must give to each division its suitable type. Thus, if we set the word 'Part' in two-line pica, we should set 'Chapter' in two-line long primer, 'Article' in great primer, and 'Section' in English."—In English works this does not often occur, but the principle laid down is very proper. "In Epistles Dedicatory, the name of the person to whom the work is dedicated should always be in capitals, and when a book is dedicated to Emperors, Princes, or Lords, the words Majesty, Highness, My Lord, &c., should be set in small capitals: the conclusion of these epistles, viz. the terms, Your very humble and very obedient, &c. &c. should be set in a smaller type, and the signature, or name of the author, in capitals of a less fount than that in which the name of the personage to whom dedicated has been set."

Formerly, the preface was uniformly set in italic; at present, this plan is seldom adopted, and roman is used in its stead, of one size larger than the body of the work. The running title to the preface is commonly set in the same manner as those of the body of the work, at the same time the folios are put in numeral letters beginning with ii over the second page, and continued in the usual manner. If the work itself was printed with folios only, then the preface should have them also in the middle of the line.

The Title, Dedication, Preface, Introduction, &c. form what is called the title-sheet, viz. signature A, which makes the bookseller's alphabet (consisting of 23 letters) complete, provided that the body of the work begins with B. To ascertain more readily how many sheets a book consists of, more than are marked with signatures in capitals or small capitals, a lower-case roman a is put to the first sheet after the title sheet, and thus carried on till the beginning of the body of the work.

What has been observed concerning Prefaces, relates equally

to Introductions, drawn up and intended to elucidate their respective works.

The Contents follow the Preface or Introduction, and are either set in roman or italic, generally of a size smaller than the body of the work; the first line of each summary full, and the rest indented an m-quadrat, with the referring figures justified at the ends of the respective lines.

The Errata are put immediately before the body of the work, or at the end of it. It is most devoutly to be wished that works could issue from the press perfectly free from errors; but, in regard to the profession of printing, more, perhaps, than any other, we may say with Pope—

> Whoever thinks a faultless piece to see,
> Thinks what ne'er was, nor is, nor e'er shall be.

Fewer mistakes would be made, were authors to endeavour to render their copy more legible, before they place it in the hands of the printer. It can hardly be expected that the corrector, under whose inspection such a variety of subjects are continually passing, should be able to enter thoroughly into every one of them, and to guess so nicely at the author's meaning, when the copy is obscure, and unable to afford him any assistance: besides, every forme is exposed to accidents which can seldom be detected as it passes through the hands of the printer; so that every additional proof may be productive of fresh error. Letters are sometimes drawn in the working, and others battered in moving and unlocking the forme, in order to make register.

The errata should consist of such corrections only as are *indispensably necessary*, without noticing any defects in the punctuation, unless where the sense is perverted.

Of Imposing.

Imposing comprehends not only the knowledge of placing the pages that they may, after they are printed off, and the sheet

folded, follow each other regularly, but also the manner of dressing the furniture, and making the proper margin.

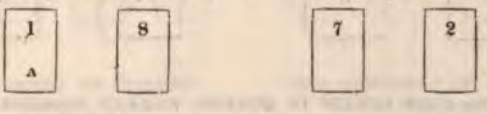
Having composed as many pages as make a whole sheet, half sheet, or less part of a sheet, of whatever size, they are taken from under the frame, and carried to the imposing stone; taking care to put the first page in its right position, with the signature to the left hand, facing the workman, according to the following schemes:—

A SHEET IN FOLIO.

Outer Forme. *Inner Forme.*

TWO SHEETS IN FOLIO, QUIRED, OR PLACED ONE IN ANOTHER.

Outer Forme of the Outer Sheet. *Inner Forme of the Outer Sheet.*



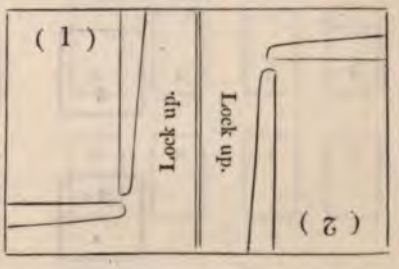
Outer Forme of the Inner Sheet. *Inner Forme of the Inner Sheet.*

Imposing in quires may be carried to any extent, by observing the following rule:—Suppose the work to consist of 32 pages, or 8 sheets, then lay 1 and 32, 2 and 31, 3 and 30, 4 and 29, &c. and as a proof of laying right, observe that every pair will make, in united numbers, one more than the sheet, as 1+32=33, 2 + 31 = 33, 3 + 30 = 33, and so on. Indeed, the same rule will apply to all imposition; thus, in octavo, the pages laying together, will be 1 and 16 = 17, 2 and 15 = 17, 3 and 14 = 17, &c.; in twelves, 1 and 24 = 25, 2 and 23 = 25, 3 and 22 = 25, and so on.

There must be less furniture in the backs of the first sheet than the last, to allow for stitching.

THE MODE OF IMPOSING ABSTRACTS OF TITLE DEEDS.

These are printed with blanks at the backs, with all the margin on the left side, and on single leaves, being stitched at the corner. The following is the method of imposing the forme to save press-work, as well as the charge of the compositor.

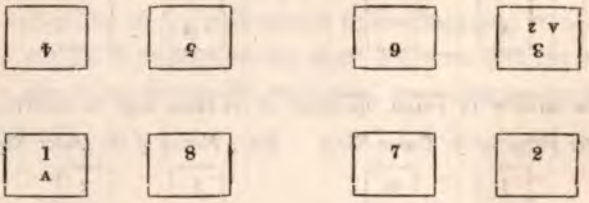


A SHEET OF COMMON QUARTO.

Outer Forme. *Inner Forme.*

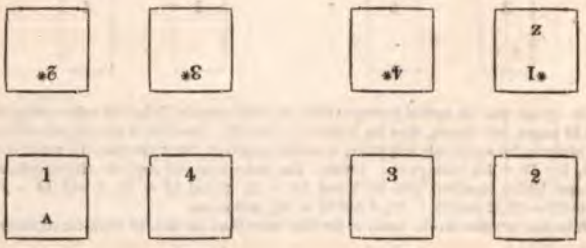
A SHEET IN BROAD QUARTO.

Outer Forme. *Inner Forme.*

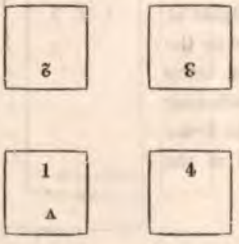


TWO HALF SHEETS IN QUARTO, WORKED TOGETHER.

Outer Forme. *Inner Forme.*



HALF A SHEET OF COMMON QUARTO.



A SHEET OF COMMON OCTAVO.

Outer Forme. *Inner Forme.*

A SHEET OF BROAD OCTAVO.

Outer Forme.

13	12	9	16
4	5 A3	8	1 A

Inner Forme.

15	10	11	14
2	7 A4	6	3 A2

HALF A SHEET OF COMMON OCTAVO.

4	5	6	3 A 2
1 A	8	7	2

TWO QUARTERS OF A COMMON OCTAVO.

2	3	4	1 B
1 A	4	3	2

TWO HALF SHEETS OF COMMON OCTAVO, WORKED TOGETHER.

Outer Forme.

4	5	8	1 B
1 A	8	5	4

Inner Forme.

2	7	6	3 A 2
3 B 2	6	7	2

SHEET OF OCTAVO WITH TWO SIGNATURES,
(12 *concluding pages of a work, and* 4 *of other matter.*)

Outer Forme.

2	3	8	5 A 3
1 A	12	9	4

Inner Forme.

6	7	4	1 Z
3 A 2	10	11	2

A SHEET IN OCTAVO, OF HEBREW WORK.

Outer Forme.

5 אנ	12	9	8
4	13	16	1 אא

Inner Forme.

7 אז	10	11	6
2	15	14	3 אב

A SHEET OF TWELVES.

Outer Forme.

12	13	16	9 A 5
8	17	20	5
1 A	24	21	4

Inner Forme.

10	15	14	11
6	19	18	7
3 A 3	22	23	2

A SHEET OF TWELVES, WITHOUT CUTTING.

Outer Forme.

5 A 3	20	17	8
4	21	16	9
1 A	24	13	12

Inner Forme.

7	18	19	6
10	15	22	3 A 2
11	14	23	2

A SHEET OF LONG TWELVES.

Outer Forme.

▲ 1	4	16	13	9	12
8	5 ▲ 3	17	20	24	21

Inner Forme.

▲ 2 3	2	14	15	11	10
9	7 ▲ 4	19	18	22	23

HALF SHEET OF TWELVES WITHOUT CUTTING.

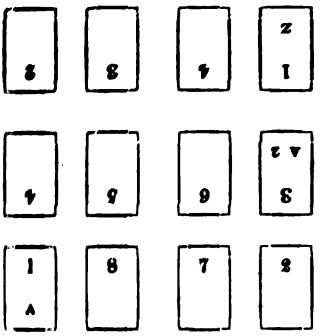
5	8	7	6
4	9	10	3
1 ▲	12	11	2

A COMMON HALF SHEET OF TWELVES.

6	7	8	5 ▲ 3
4	9	10	3 ▲ 2
1 ▲	12	11	2

HALF SHEET OF TWELVES WITH TWO SIGNATURES,

(being 8 concluding pages of a work, and 4 of other matter.)



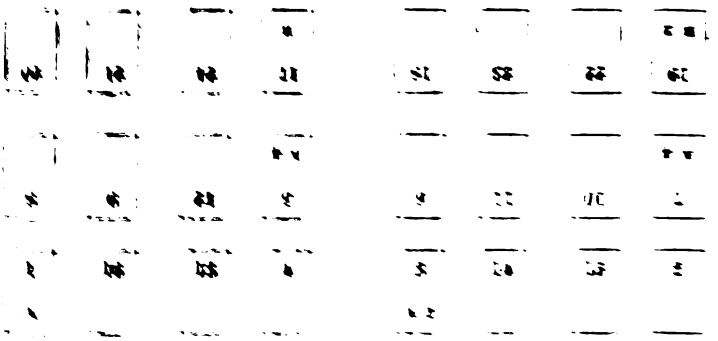
ONE-THIRD, OR EIGHT PAGES OF A SHEET OF TWELVES.*

(To be imposed in the off-cross.)

Outer Forme. *Inner Forme.*

A SHEET IN TWELVES, WITH TWO SIGNATURES.

Outer Forme. *Inner Forme.*



* [illegible]

TWO HALF SHEETS OF TWELVES WORKED TOGETHER.

Outer Forme.

6	7	6	7
4	9	4	9
1 V	12	1 Z	12

Inner Forme.

5 A 2	8	5 Z 3	8
3 A 2	10	3 Z 2	10
2	11	2	11

A SHEET IN SIXTEENS, WITH ONE* SIGNATURE.

Outer Forme.

4	29	28	5
13	20	21	12
16	17	24	9
1 V	32	25	8

Inner Forme.

3 A 2	30	27	6
14	19	22	11
15	18	23	10
2	31	26	7

* A sheet in sixteens, with two signatures, is imposed as two sheets of common octavo, putting the first signature for the one half sheet where A stands above, and the first page of the other half sheet in the place where the fifth page is.

A HALF SHEET IN SIXTEENS.

2	15	14	3 A 2
7	10	11	6
8	9	12	5
1 ▲	16	13	4

A SHEET OF EIGHTEENS, WITH ONE SIGNATURE.

Outer Forme.

10	27	26	11 A 6	20	17 A 9
8	29	32	5 A 3	22	15 A 8
1 ▲	36	33	4	23	14

Inner Forme.

18	19	12	25	28	9 A 5
16	21	6	31	30	7 A 4
13 ▲ 4	24	3 ▲ 2	34	35	2

A SHEET OF EIGHTEENS, WITH TWO SIGNATURES.

Inner Forme.

7 B 4	9	S B 2	10	11	2
7 A 4	18	19	6	15	10
2	23	22	S A 2	14	11

Outer Forme.

1 B	12	9 B 5	4	5 B 3	8
9 A 5	16	5 A 3	20	17	8
12	13	4	21	24	1 A

A SHEET OF EIGHTEENS, WITH THREE SIGNATURES, AS THREE HALF SHEETS OF TWELVES.

Inner Forme.

2	11	10	S C 2	6	7 C 4
2	11	10	S B 2	6	7 B 4
2	11	10	S A 2	6	7 A 4

Outer Forme.

8	5 C 3	4	9	12	1 C
8	5 B 3	4	9	12	1 B
8	5 A 3	4	9	12	1 A

A SHEET OF EIGHTEENS,
TO BE FOLDED UP TOGETHER.

Inner Forme.

6	3 A 2	2
31	34	35
30	27	26
7 A 4	10	11 A 7
18	15	14
19	22	23

Outer Forme.

20	21	24
17	16	13
8	9 A 5	12
29	28	25
32	33	36
5 A 3	4	1 A

A SHEET OF EIGHTEENS,
AS A SHEET OF TWELVES AND
A HALF SHEET OF TWELVES.

Inner Forme.

11	7	2
14	18	23
15	19	22
10	6	3 A 2
5 A 3	3	2
8	10	11

Outer Forme.

7	9	12
6	4	1 A
9 A 5	5	4
16	20	21
13	17	24
12	8	1 A

A HALF SHEET OF EIGHTEENS.

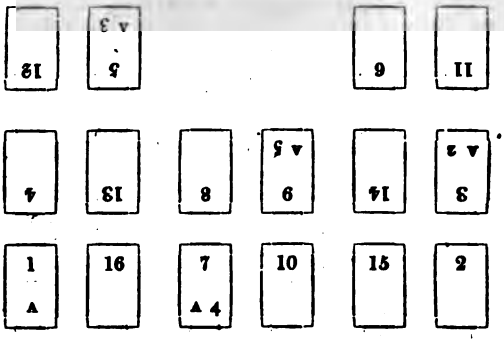
1 A	18	11	8	17	2
4	15	12	7 A 4	16	3 A 2
14	5 A 3	10	9 A 5	6	13

The white paper of this forme being worked off, the four lowermost pages in the middle must be transposed; viz. pages 8, 11, in the room of 7, 12, and pages 7, 12, in the room of 8, 11.

A HALF SHEET OF EIGHTEENS, WITHOUT TRANSPOSING THE PAGES.

1 A	12	13 B	14	11	2
4	9	16	15	10	3
6	7	18	17 C	8	5 A 3

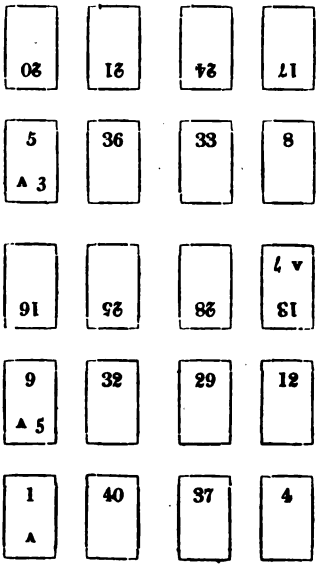
SIXTEEN PAGES TO A HALF SHEET OF EIGHTEENS.



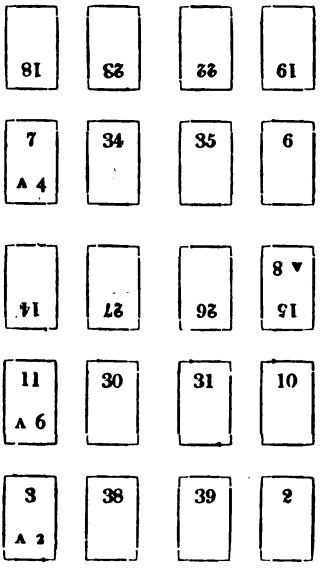
The white paper of this half-sheet being worked off, the middlemost pages must be transposed; viz. pages 7, 10, in the places of 8, 9, and pages 8, 9, in the places of 7, 10.

A SHEET OF TWENTIES.

Outer Forme.



Inner Forme.



A SHEET OF TWENTY-FOURS, WITH TWO SIGNATURES.

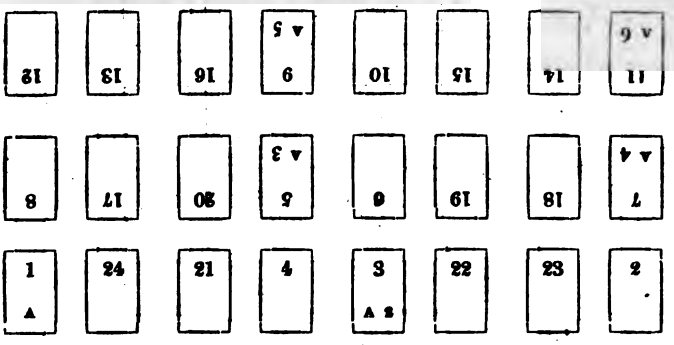
Inner Forme.

11 ▲ 6	14	15	10	35	38	39	34	7 ▲ 4	18	19	6
2	23	22	S ▲ 2	26	47	46	27 E 6	31 E 4	42	43	30

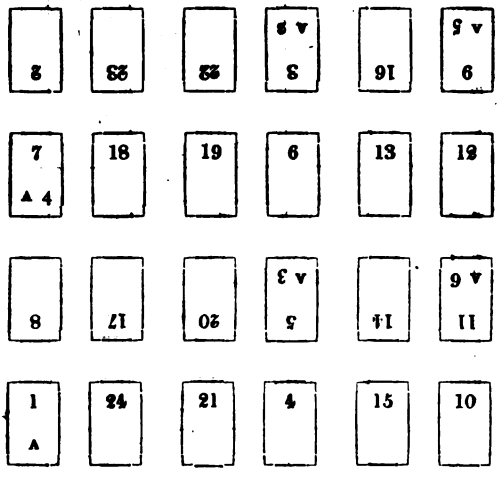
Outer Forme.

12	13	16	9 ▲ 5	36	37	40	33 E 5	8	17	20	5 ▲ 3
1 ▲	24	21	4	E 25	48	45	28	32	41	44	29 E 3

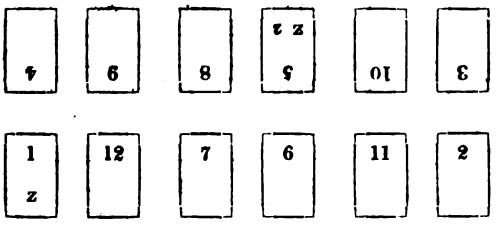
A COMMON HALF SHEET OF TWENTY-FOURS.



A HALF SHEET OF TWENTY-FOURS, THE SIXTEEN-WAY.

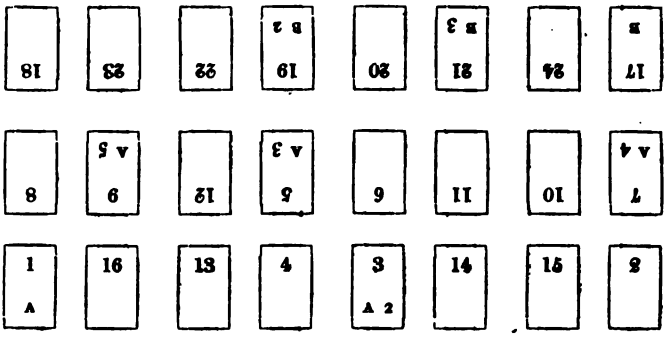


A QUARTER SHEET OF TWENTY-FOURS.

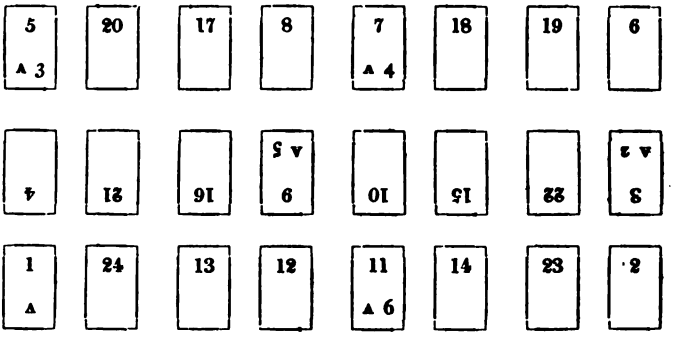


The white paper of this quarter sheet being worked off, the middlemost pages must be transposed, viz. pages 5, 7, in the places of 6, 8, and pages 6, 8, to the places of 5, 7.

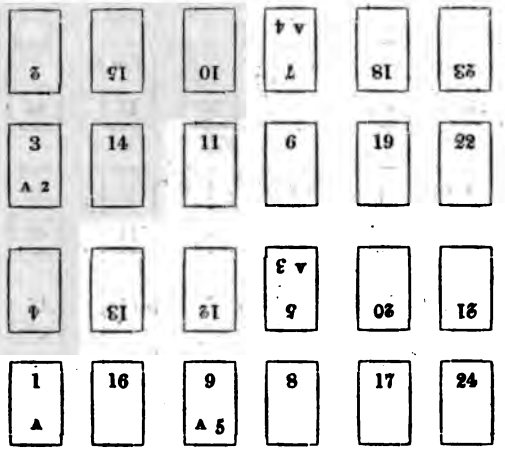
A HALF SHEET OF TWENTY-FOURS, WITH TWO SIGNATURES.



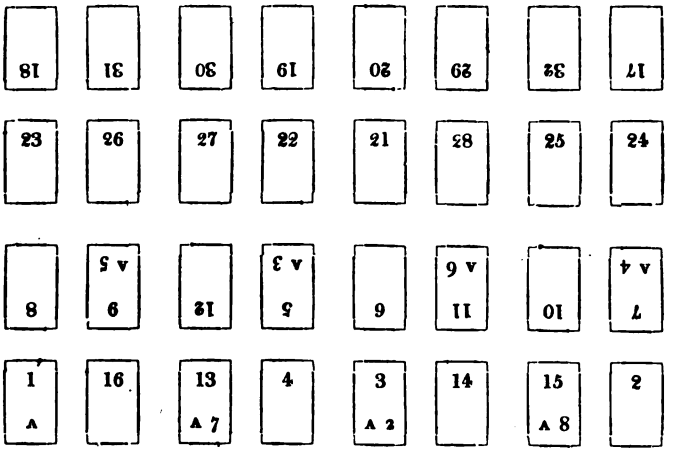
A HALF SHEET OF TWENTY-FOURS, WITHOUT CUTTING.



A HALF SHEET OF LONG TWENTY-FOURS.



A HALF SHEET OF THIRTY-TWOS.



A SHEET OF THIRTY-TWOS.

Inner Forme.

3 ▲ 2	64	35	30	27	38	59	6
14	19	34	31	22	43	46	11 ▼ 9
15 ▲ 8	50	47	18	23	42	55	10
2	63	34	31	26	39	38	7 ▼ 4

Outer Forme.

5 ▲ 3	60	37	28	29	36	61	4
21	35	44	12	20	54	25	13 ▼ 7
9 ▲ 5	56	41	24	17 ▲ 9	48	49	16
8	57	40	52	33	33	49	1 ▼

A SHEET OF THIRTY TWOS, WITH FOUR SIGNATURES.

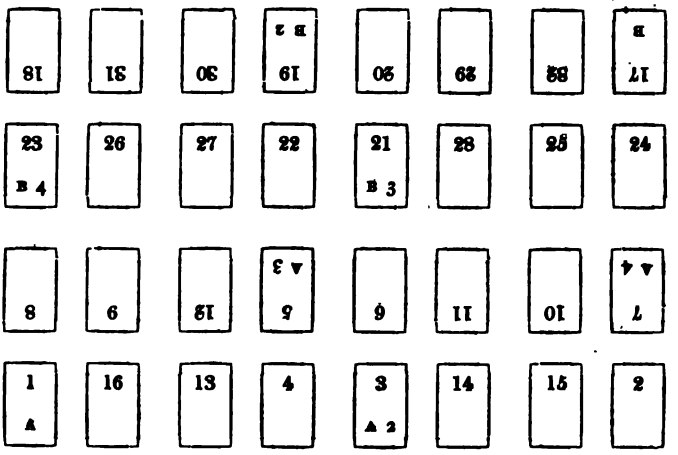
Inner Forme.

49 D	64	61	52	36 C 2	46	47	34
56	57	60	53 C 3	38	43	42	39 C 4
7 A 4	10	11	6	31 B 3	28	25	24
2	15	14	3 A 2	20	29	32	17

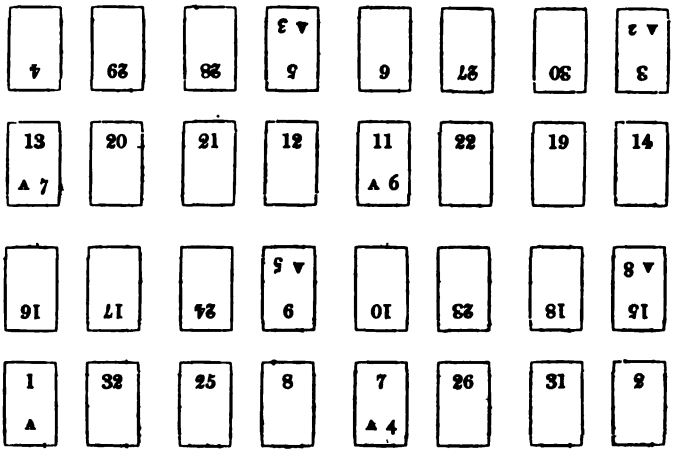
Outer Forme.

33 C	48	45	36	51 D 2	62	63	50
40	41	44	37 C 3	54	59	58	55 C 4
23 B 4	26	27	22	5 A 3	12	9	8
18	31	30	19 B 2	4	13	16	1 A

A HALF SHEET OF THIRTY-TWOS, WITH TWO SIGNATURES.



A COMMON HALF SHEET OF THIRTY-TWOS.



A HALF SHEET OF THIRTY-SIXES.

1 A	8	10	6 A 5	7 A 4	2
36	29	27	28	30	35
33	32	26	25	31	34
4	5 A 3	11 A 6	12	9	3 A 2
23	22	20	19	21	24
14	15 A 8	17 A 9	18	16	13 A 7

A HALF SHEET OF THIRTY-SIXES, WITH TWO SIGNATURES.

1 A	8	26	25 B	7 A 4	2
24	17	35	36	18	23
21	20	34	33	19	22
4	5 A 3	27 B 2	28	9	3 A 2
15	14	32	31	13	16
10	11 A 6	29 B 3	30	12	9 A 5

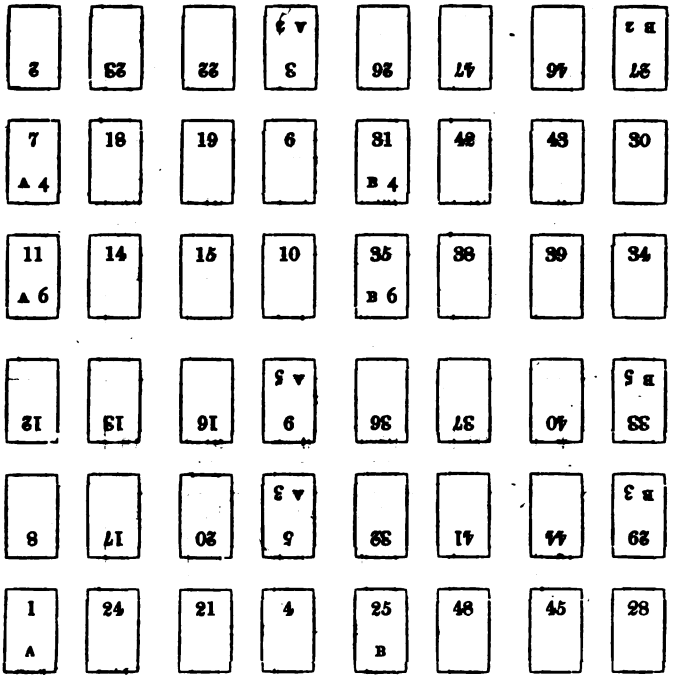
A HALF SHEET OF THIRTY-SIXES, WITHOUT CUTTING.

1 ▼	36	25	12	13	24
4	33	28	9 ▲ 5	16	21
5	32	29	8	17	20
6	31	30	7 ▲ 4	18	19
3 ▲ 2	34	27	10	15	22
2	35	26	11 ▲ 6	14	23

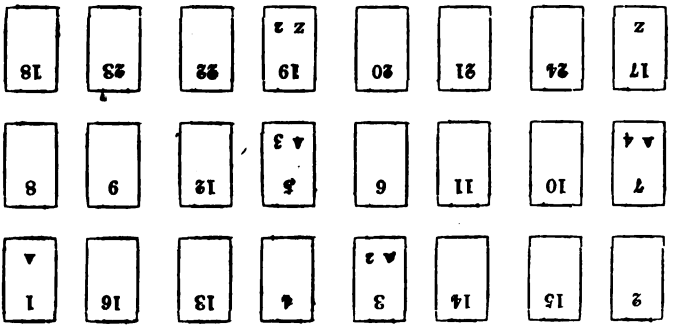
A HALF SHEET OF FORTIES.

1 ▼	40	37	4	3 ▲ 2	38	39	2
6 ▼ 5	32	29	12	11 ▼ 9	30	31	10
16	25	28	13 ▲ 7	14	27	26	15 ▲ 8
5 ▼ 3	36	33	8	7 ▼ 4	34	35	9
20	21	24	17	18	23	22	19

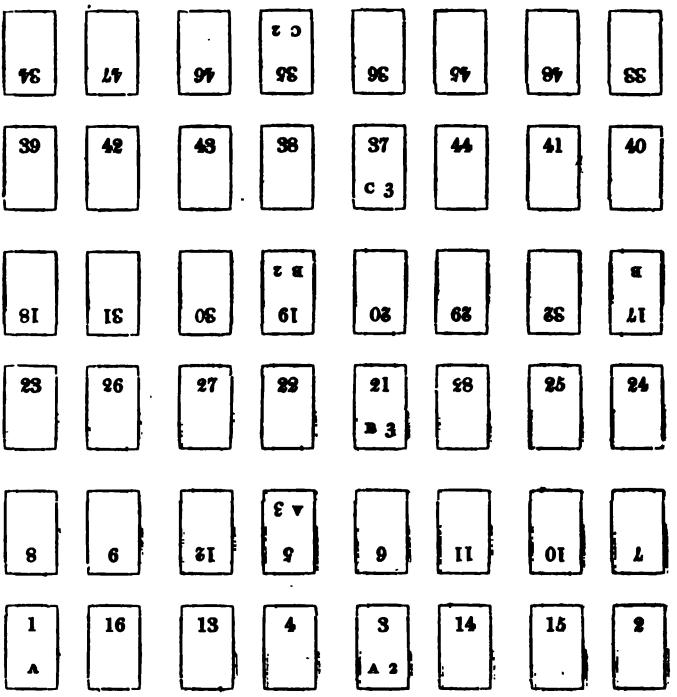
A HALF SHEET OF FORTY-EIGHTS, WITH TWO SIGNATURES.



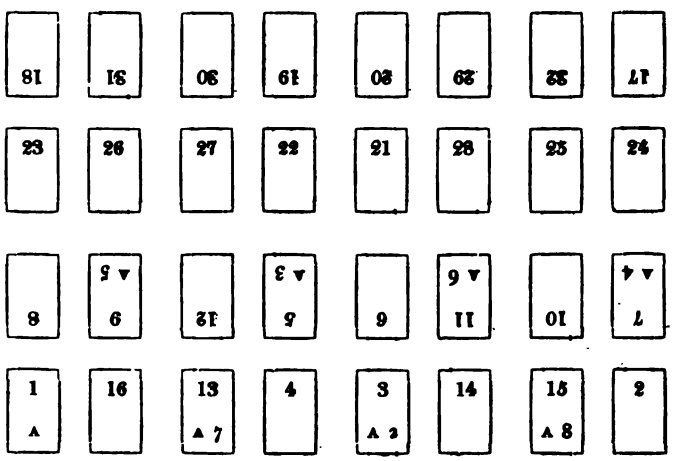
A QUARTER SHEET OF FORTY-EIGHTS, WITH TWO SIGNATURES.



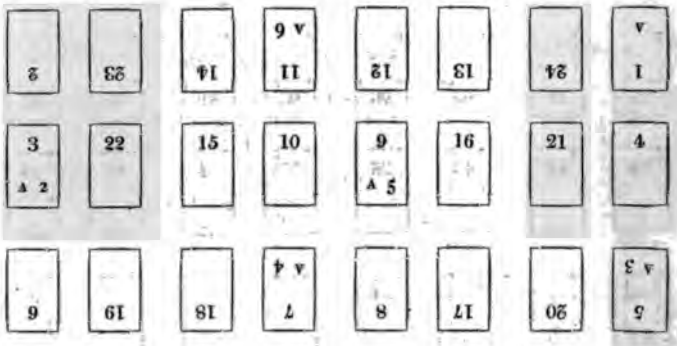
A HALF SHEET OF FORTY-EIGHTS, WITH THREE SIGNATURES.



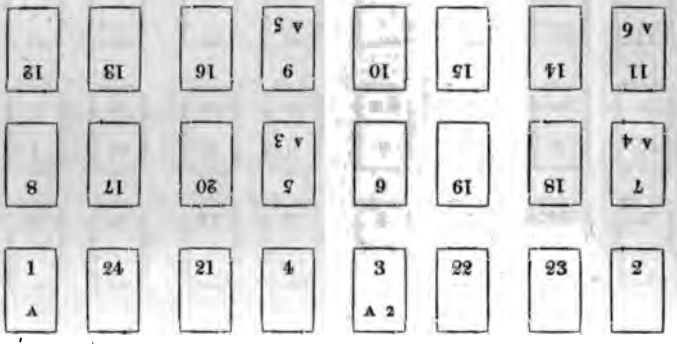
A QUARTER SHEET OF SIXTY-FOURS.



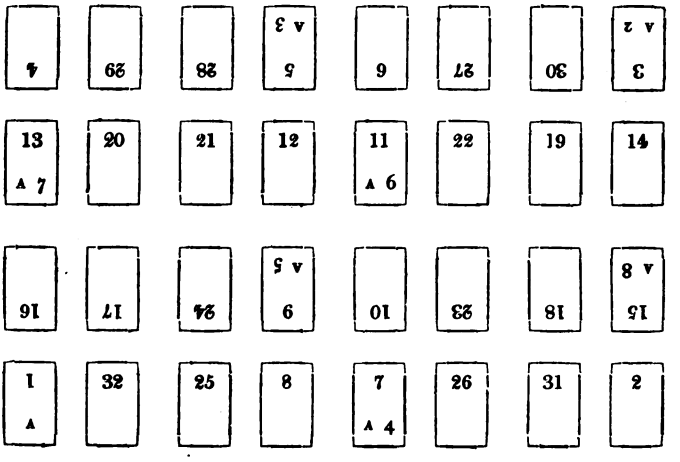
A QUARTER SHEET OF FORTY-EIGHTS, WITHOUT CUTTING.



A COMMON QUARTER SHEET OF FORTY-EIGHTS.



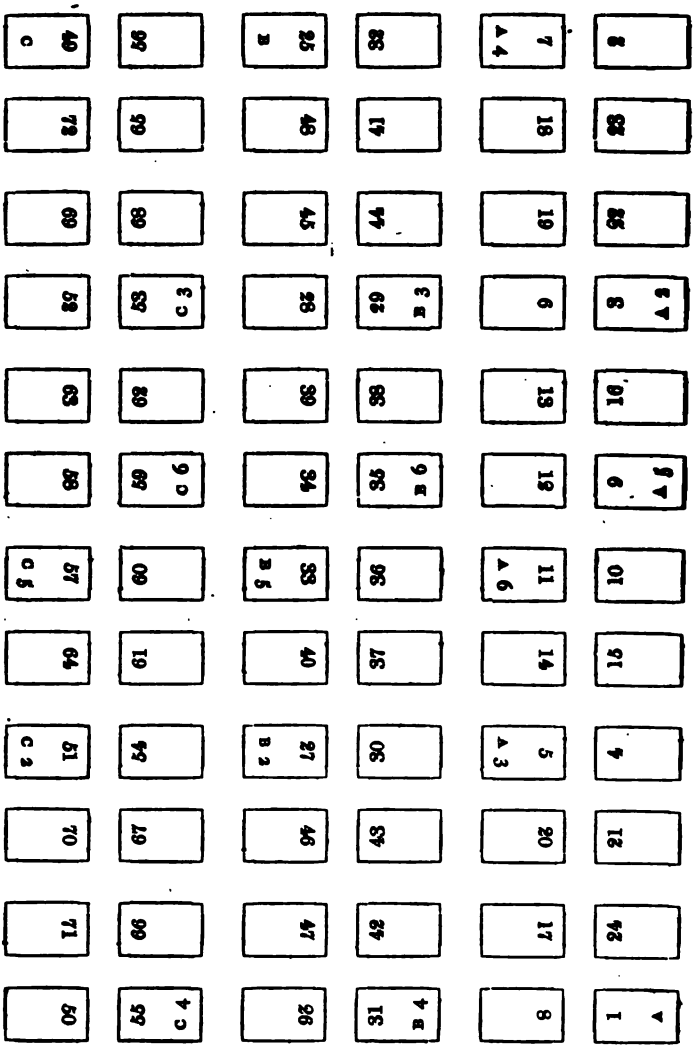
A COMMON QUARTER SHEET OF SIXTY-FOURS.



A HALF SHEET OF SIXTY-FOURS.

1 ♥	64	33	32	25	40	57	8
16	49	48	17 ♠ 9	24	41	56	9 ♠ 5
13 ♥ 7	52	45	20	21	44	53	12
4	61	36	29	28	37	60	5 ♠ 3
3 ♥ 2	62	35	30	27	38	59	6
14	51	46	19	22	43	54	11 ♠ 6
15 ♥ 8	50	47	18	23	42	55	10
2	63	34	31	26	39	58	7 ♠ 4

A HALF SHEET OF SEVENTY-TWOS, WITH THREE SIGNATURES.



A HALF SHEET OF NINETY-SIXES, WITH SIX SIGNATURES.

66	71 E 4	80	55 D 4	8	1 A
79	74	63	58	9	16
78	75	62	59	12	13
67 E 2	70	51 D 2	54	5 A 3	4
84	85 F 3	36	37 C 3	22	19 B 2
93	92	45	44	27	30
96	89	48	41	26	31
81 F	88	33 C	40	23 B 4	18
82	87 F 4	34	39 C 4	24	17 B
95	90	47	42	25	32
94	91	46	43	28	29
83 F 2	98	35 C 2	38	21 B 3	20
68	69 E 3	52	53 D 3	6	3 A 2
77	76	61	60	11	14
80	73	64	57	10	15
65 E	72	49 D	56	7 A 4	2

A HALF SHEET OF ONE HUNDRED AND TWENTY-EIGHTS.

113 H	120	65 E	72	49 D	56	7 A 4	2
118	121	80	73	64	57	10	15
125	124	77	76	61	60	11	14
116	117 H 3	68	69 E 3	52	53 D 3	6	3 A 2
99 G 2	102	83 F 2	86	35 C 2	38	21 B 3	20
110	107	94	91	46	43	28	29
111	106	95	90	47	42	25	32
98	103 G 4	82	87 F 4	34	39 C 4	24	17 B
97 G	104	81 F	88	33 C	40	23 B 4	18
112	105	96	89	48	41	26	31
109	108	93	92	45	44	27	30
100	101 G 3	84	85 F 3	36	37 C 3	22	19 B 2
115 H 2	118	67 E 2	70	51 D 2	54	5 A 3	4
126	123	78	75	62	59	12	13
127	122	79	74	63	58	9	16
114	119 H 4	66	71 E 4	50	55 D 4	8	1 A

The preceding schemes will be found to contain every necessary or usual form of imposition, consisting of folios, quartos, octavos, twelves, sixteens, eighteens, &c. together with many irregular sizes, viz. twenties, thirty-sixes, forties, forty-eights, sixty-fours, seventy-twos, ninety-sixes, and one hundred and twenty-eights; these, and many more irregular sizes may be made, with a view to shew the possibility of folding a sheet of paper into so many various forms. We have also given a plan for imposing a half sheet of eighteens without transposing the pages on the press, which will be found extremely useful, as works in that size are now constantly printing. Much time will also be saved in the warehouse work, for it will now only be necessary to cut the sheet through in the middle, in the same manner as a half sheet of octavo; but then, in each half sheet, there will be three single leaves.

It is necessary, before we proceed further on the subject of imposing, to make a few observations on the method of tying up a page, which is done with a piece of fine packthread, called by the makers "sealing twine," turned four or five times round it, and fastened at the right-hand corner, by thrusting a noose of it between the several turnings and the matter, with a piece of brass rule, and drawing it perfectly tight; taking care, during the whole time, to keep the fore-finger of the left hand tight on the corner, to prevent the page from being drawn aside when the cord is strained.

The page being tied up, the compositor removes it pretty far from the ledges of the galley, to see if the turns of cord lie about the middle of the shank of the letter; if they lie too high, as most commonly they do, he thrusts them lower, and, if the page be not too broad, he places his fore or middle finger, or both, of his right hand, on the right side of the page, and his thumb on the left; then, bending his other fingers under the head of the page, he places it over the page-paper, as he means to discharge the page in that, placing the fingers of his left hand about the foot of the page, upon the ends of the lines on the right-hand side, and his thumb on the left-hand side, with the palms of his hands towards the face of the letter, and his other fingers bent under the foot of the page, with the face of the letter from him, and letting it rest upon the inside of his fingers, under the right-hand side of the

page, he takes a page paper into the palm of his left hand, and puts it against the bottom of the page, and turning his left hand outward, receives the page flat upon the paper on the palm of his hand; then, with his right hand grasps the sides of the page and the paper which turns up again above the bottom of the page, and sets it in a convenient place under his frame, placing it on the left hand, with the foot towards him, that the other pages which are in like manner set down afterwards, may stand by it in an orderly succession until he comes to impose them.

If it be a large folio page he has tied up, which he cannot take into his hands, because it is too broad for his grasp, he carries his galley and page to the imposing stone, and then turns the head of the galley towards him, and placing the ball of the thumb of his left hand against the inside of the head of the page, to hold it and keep it steady, with a quick motion draws away the galley, when the page falls upon the paper.

To return to the subject of imposing:—sixteens, twenty-fours, and thirty-twos, are but octavos and twelves doubled, or twice doubled, and imposed in half sheets. For example, the sixteens are two octavos imposed on each side the short cross; the twenty-fours are two twelves imposed on each side the long cross, and a thirty-twos is four octavos imposed in each quarter of the chase. And thus a sheet is doubled as often as thought necessary. But as we said before, they are imposed on each side the cross, or in each quarter of the chase, as the sheet that is doubled or redoubled is imposed in the whole chase.

In half sheets, all the pages belonging to the white paper and re-iteration are imposed in one chase. So that when a sheet of paper is printed on both sides with the same forme, that sheet is cut in two in the short cross, if quarto or octavo, and in the short and long cross, if twelves, and folded as octavo or twelves.

When a compositor proceeds to impose, he takes up the pages he set by on papers in an orderly succession when he tied them up, grasping the edges of the papers on both sides of the page tightly, that so the bottom of the paper may stand the stronger against the bottom of the letter, to keep it from falling out; and bringing it thus to the correcting stone, he turns the flat part of his left hand on the face of the page, with the thumb on one side, and little finger on the other, the three fingers being extended on

the page to keep it from springing up; then taking hold of the page-paper with the right, and at the same time easing the weight of the page with the left hand, he carefully draws away the paper, and places the page in its proper position on the stone. In this manner he lays down all the pages of the forme.

The pages for a forme being put down, we follow them by the folios and catch words, if any are used, to see they are laid down rightly. In close and ordinary matter we take notice, first, whether the uneven outer pages have their proper signatures; then, for further proof, count whether the number of an outside page, and the number of the page next to it, amount to one more than there are pages contained in a sheet or half sheet of our work. Thus, for example, in folio, one and four make five; in quarto, one and eight make nine; in octavo, one and sixteen make seventeen. In this manner we may examine every two pages in all other sizes, whether their joint number exceeds the number of pages in a sheet by one; which, if it does, is a proof that the pages are in their right places.

Being sure that our pages are laid down right, we proceed to dressing of chases, which we will suppose to be for a sheet of octavo. Accordingly we endeavour to come at a good pair of chases, that are fellows, as well in circumference as in other respects; and having laid them over the pages for the two different formes, we consider the largeness of the paper on which the work is to be done, and put such gutter-sticks betwixt page and page, and such reglets along the sides of the two crosses, as will let the book have proper margins after it is bound. Having dressed the inside of our pages, we proceed to do the same to their outsides, by putting side-sticks and foot-sticks to them, and when properly secured by the furniture, we begin to untie them, quarter after quarter, the inner page first and then the outer, driving at the same time the letter towards the crosses, and using every other means to prevent it from hanging or leaning; for which purpose, and to keep it from other accidents, we secure the pages of each quarter by a couple of quoins.

By observing a proper method in cutting up new furniture, the same will be serviceable for other works, as well as the one for which it is intended, even though the size of the page may differ, provided it agrees with the margin of the paper. The gutters

should be cut two or three lines longer than the page; the head-bolts wider; the back furniture may run down to the rim of the chase, but must be level with the top of the page, which will admit of the inner head-bolt running in; the difference of the outer head-bolt may go over the side-stick, and the gutter will then run up between them. The foot-stick only need be cut exact, and the furniture will completely justify.

The pages of a sheet or half sheet being now dressed, our next business is to make the margin, or to try whether our furniture is so proportioned as that each page may occupy one side of a leaf, so as to have an equal margin of white paper left at the sides as well as at the head and foot thereof.

The method of making margin by rule, is practised by no other printing nation besides the English; and it would be in vain to persuade printers and booksellers in foreign parts to come into our measures, as to making margin; since they would disoblige the literati were they to deprive them of a large margin, on which to make their remarks.

To make proper margin, some use the following method, for octavos; viz. they measure and mark the width of four pages by compasses, on a sheet of paper designed for the work, beginning to measure at the one extremity of the breadth of the sheet. The rest of the paper they divide into four equal parts, allowing two-fourths for the width of two separate gutter-sticks; the remaining two-fourths they divide again into four equal parts, and allow one-fourth for the margin along each side of the short cross, and one-fourth for the margin to each outside page. But because the thickness of the short cross adds considerably to the margin, they reduce the furniture in the back accordingly, and thereby enlarge the outside margin, which requires the greatest share, to allow for the unevenness of the paper itself, as well as for pressmen laying sheets uneven, when it is not a fault in the paper. Having thus made the margin between the pages, to the breadth of the paper, they proportion the margin at the head, in the same manner, to the length, and accordingly measure and mark the length of two pages, dividing the rest into four parts, allowing one-fourth for each side of the long cross, and one-fourth for the margin that runs along the foot of the two ranges of pages. But though they count each part equal to another, it does not prove so upon examina-

tion; so they lessen the furniture on both sides of the long cross, as they did at the short cross, to enlarge the bottom margin, for the same reasons that were assigned for enlarging the side margin.

"This being the method used in making margin to octavos, they go the same way to work for the same purpose in twelves; where the chief care is to fix upon a proper size for the head-sticks or bolts; and, according to them, allow in the following manner; viz. for the outer margin along the foot of the pages, the amount of two-thirds of the breadth of the head-sticks, and the same for the inner margin, that reaches from the foot of the fifth page to the centre of the groove for the points; and from the centre of that groove to the heads of the pages of the off-cut, they allow half the breadth of the head-stick. As to the margin along the long cross, it is governed by the gutter-sticks; and it is usual to put as much on each side of the long cross as amounts to half the breadth of the gutter-stick, deducting scarcely any thing for the long cross, as that allows for the outer margin—exposed to the mercy both of the pressman and book-binder.

Thus much may suffice as to making margin in the above way;* which, though it differs from that used by others, is nevertheless the basis for making a proper division of the paper."

The most easy and approved practical method now in use is as follows: having provided your chases, see that the crosses are well fitted in the mortises, and free from any remains of old scaleboards or lumps of rust. Lay the chase over the pages, and get a sheet of the paper intended to be used for the work out of the wet heap; or if it has not been previously wet, have a sheet put into another wet heap; by this precaution more certainty is obtained than by guessing at the allowance to be made for the expansion of the paper in wetting, and which varies in some degree in different papers. Fold this sheet to the intended size of the book, say octavo; then lay the back, or folded part of the

* I have preserved the above method, as copied by Mr. Stower from Luckombe, for the benefit of those compositors, if any, who are able, or choose to perform an otherwise simple operation, in a truly mathematical method; but I suspect the result of this mode will frequently remind him of the manner in which a man is measured for his clothes by the taylors in Dean Swift's island of Laputa.

paper against the side of an inner page, and stretch it over the right-hand, or outer page, moving that page so that its outside, and the extremity of the paper, nearly correspond. Being provided with two or three metal quotations, try the space thus left between the two pages as to what gutter-stick must be provided; whether it will take a double-narrow, double-broad, broad-and-narrow, two-broads-and-narrow, &c. &c., such being the technical names of the furniture as described p. 482; and you have only to fix the name of the width wanted, and give the length in inches, or by a piece of scaleboard or reglet, to enable the printer's joiner to suit you with gutters. It is better to have them half a line shorter than the page, to prevent any accident of binding; and to have at one order a sufficient number for the sheets of letter of the work that you mean to have in chase. Many houses, to avoid delay in sending to the joiner, keep an assortment of gutter furniture in yard lengths; and by the use of the saw and saw-block furnish their own gutters; and in time acquire such an assortment as not to have to cut for every new work. The gutters being provided, the next care is, to supply the backs and head-sticks. To do this, place a gutter, or the quotations, between two pages on each side of the cross, resting lightly on the page-cords: then open the paper to quarto; and placing the inner or folded edge against the side of the page next to one side of the cross, stretch it over the two pages and gutter on the other side of the cross, moving the pages so that the outside, or fore-edge of the paper reach exactly to the extremity of the outer page, and the distance at which the sides of the two inner pages will then stand from the cross, will indicate the furniture necessary on each side of the cross; as, broad, narrow, two-line-english, &c., and any difference yet remaining must be made up by reglet, scaleboard, &c. The head and foot margins are made by similar process; laying the paper from the head-line of one page, over and to the foot-line of the opposite, will show what is necessary to be put on each side of the long cross in octavo; and those for the short cross, in duodecimo, as well as the bolts, will be regulated by the same means. It is desirable that the gutters should be rather under the full gage or extent of the paper before described, in order to allow a greater proportion in the backs, as when the sheet is folded these form the fore-edge, which is subject to the contribution to the bookbinder's shaving-tub, to which the

margin formed by the gutters is not liable; and if nothing was allowed on this account, the outside margin of a bound book would be less than the inner. One or two scaleboards ought also to be put on each side of the crosses, to assist the pressman in making register when the pages do not back perfectly, either from the chases or cross not being truly square, or from unequal locking up, or inequality in the furniture, or from the shrinking of the paper between the time of working white-paper and reiteration. To satisfy yourself more fully that all is correct, or that you have dressed margin out-and-out, unfold the sheet, and laying the middle fold to coincide with the middle of the short cross, see that the other folds all fall exactly upon the middle of the several gutters; or, if duodecimo, of the heads and bolts, &c.; and if these foldings fall upon the middle of their respective parts of the furniture, it proves that the margin will, when folded, be right throughout; but if the foldings do not coincide with the lines, which they ought to do, then as much more scaleboard, &c. must be added to the backs, heads, or elsewhere, as is wanted to regulate every position. The chases being now dressed, and the proper margin made, nothing remains but quoining and locking up the formes.

All that has been said concerning making of margin, relates properly to imposing the first sheet of a work; for after that is truly dressed, a second, or more sheets, may be dressed with less trouble; as when we impose from wrought-off formes, we have nothing to do but to put the chase with the furniture and quoins about the pages, in the same manner as we take it off from the forme we are stripping.

In order to be accurate in altering the folios of the respective pages, according to their regular succession, we have arranged in the appendix a copious table of signatures and folios.

We next proceed to locking up our formes; first carefully examining whether the pages of each quarter are of an exact length, for the difference even of a lead will cause them to hang. We ascertain their exactness by placing the ball of each thumb against the centre of the foot-stick, raising it a little with the pressure, and if the ends of both pages rise equal with the stick, it is a proof they will not bind; we then fit quoins betwixt the side and foot stick of each quarter, and the chase, till the whole forme may be raised. And though locking up a forme may be

thought a trifling matter, it demands our attention nevertheless in several instances. When we have pushed the quoins as far as we can, with our fingers, we begin the use of the mallet and shooting-stick, and drive the quoins gently along the side-sticks at first, and then those along the foot-sticks, taking care to use an equal force in our strokes, and to drive the quoins far enough up the shoulders of the side and foot sticks, that the letter may neither belly out one way, nor hang in the other; and as to the lower quoins, they ought likewise to be driven to a station where they may do the office of keeping the letter straight and even.

Our forme, or formes, being now locked up, and become portable, we deliver them to the proof press, and it becomes the duty of the pressmen to pull a proof of them. But here we must notice an impropriety that prevails with some pressmen, in turning the term of *first* proof into that of *foul* proof, and too generally pulling the proof accordingly; whereas the slightest knowledge of printing, or indeed common sense, should be sufficient to show that a proof sheet ought to be pulled as clean and as neat as any sheet in a heap that is worked off. Hence it is a rule with careful pressmen, not to give proofs a high colour, nor to use very wet paper for them, but instead of these easements to give them a long and slow pull, that the matter may come off clean and fair, so that every letter may appear full and plain; after which the formes are rubbed over with a wet lye-brush, then carefully taken off the press, and the proof and formes delivered to the compositor's further care.

On the best means of expediting Bills in Parliament, Pamphlets, and other Works of a temporary and urgent nature.

A judicious distribution of the employment of workmen in every kind of business, is the only means of expediting it. This observation applies very forcibly to the printing business. Pamphlets, and other works of a temporary nature, it is sometimes necessary to print in the course of a few hours; to accomplish this the utmost exertion, accompanied with skilful management, is requisite: we shall, therefore, lay down a plan which we conceive will be found fully to answer this purpose.

As soon as a work of this nature is put in hand, it must be the business of the overseer to select such men as are able to complete the greatest quantity of work in a given time. We will suppose eight men are ordered to distribute letter for it. Their first concern must be, to appoint one from among them who thoroughly understands his business, and is in other respects qualified to undertake the management of the work, to make it up, and to do every thing which interferes with the regular business of distributing, composing, and correcting.

Having done this, let them proceed to the distribution of their letter; while the *clicker*, or person appointed to manage the job, applies to the overseer for the copy, receives instructions respecting it, and procures leads and every other necessary sort. He then draws out the following table:

Compositors' Names.	Folios of Copy.	Lines Composed.	Memorandums.

In the first column he sets down the name of each compositor when he takes copy; and, in the second, the folio of the copy, that he may be able to ascertain instantly in whose hands it lies. In the third column he notes down the number of lines each man has composed, opposite to his name, as fast as the gallies are brought to him. In the fourth, he sets down such remarks respecting the copy, &c. as may be necessary, and also any circumstance that may occur in the companionship.

By this means each compositor will receive a share of the amount, according to the number of lines he composes, and the clicker must have an equal share with the person who sets the greatest quantity: or it may be done by limiting the quantity each man is to compose in an hour; whoever is deficient in this quantity must suffer a proportionate deduction from his share of the work.

When the members of the companionship are ready for their

first taking of copy, they are to receive it from the clicker in pieces as short as possible, taking care that the two first have shorter takings than either of the others, to prevent as much as possible, any delay in the making up. During the time the first taking is in hand, the clicker sets the half-head, head lines, white lines, and signature lines, together with side notes, and other extraneous matter.

As soon as the first person brings him his matter, he counts off the number of lines, and inserts them in the table; then gives him another taking of copy, and proceeds with the making-up. The same plan is observed with the rest of the companionship.

When the first sheet is made up, he lays the pages on the stone, and informs the overseer of it, who will then immediately procure chases and furniture.

The work will now proceed rapidly, provided the compositors stick close to their business, and there be no hindrance with respect to letter, &c. which depends on the good management of the overseer. If the clicker find that he cannot make up the matter as fast as it is composed, he should call one of the compositors to his assistance, who must be the person last in copy. In this case he counts the lines he has composed, sets them down in the table, and takes notice of the time he is off, which is to be made up to him by a deduction from the share of each person.

The proofs should be read immediately after they are pulled, and given to the clicker to be corrected. As soon as this is done, he lays up the formes, and gives the proof to the compositor whose matter stands first, who should immediately correct it, then forward it to the next, and so on, till the sheet be corrected; the clicker then locks it up, and carries the formes to the proof-press.

As soon as one of the companionship is out of copy, and there is no more to give out, the lines of the whole must be counted off, and set down in the table, which closes the account, and then every one does as much as he can for the general benefit. If there be not work enough to employ the whole, those who are not wanted may go to their regular work, and the time of their absence, till the rest of the companionship return to theirs, be deducted from their respective shares.

It would save time in making calculations, could the companionship agree to divide the amount of the bill between them in equal

proportions, and merely fine those who absent themselves from the office; but as some compositors will set considerably more than others, the above mode will, we conceive, be found to answer best, as it excites a spirit of emulation, and induces them to pursue their work with vigour.

Rules to be observed in Companionships.

THE disputes which frequently arise in printing-offices upon trifling as well as intricate points, can only be settled by a reference to the general custom and usage of the trade. These misunderstandings, which annoy and retard business, often take place in companionships consisting of three or four compositors; it is therefore highly desirable that the generally-received rules and regulations on this subject should be explicitly and clearly laid down for the future comfort and government of the compositor.

Taking Copy.

IF it be printed copy, and the compositor be desired to follow page for page, each sheet, as it is given out, should be divided into as many parts as the companionship may consist of, and the choice of each part, if it materially varies, should be thrown for.* During the absence of either of the companionship, if he be likely soon to return, some one should throw for him, on condition that he will

* Throwing is the ancient game of chance peculiar to a printing-office. Nine m-quadrats having been well shaken in the box made of the two hands placed with the palms facing as hollow as possible, and thrown on the stone, so many of them as come with the nicks uppermost, count in every throw: and three throws generally constitute the game of each thrower. It is sometimes carried on with an earnestness that may bear comparison with the dice and box, and shaking of elbows, at White's or Brookes's: and to cast the chances upon the game in all its possible changes, is a subject that may perhaps sometime engage the attention of such disciples of Hoyle, as are desirous to enlarge the sphere of the goddess of chance. I have seen all the nine thrown nicks upwards, against which it is three to one upon every quadrat; there being, to each piece, three blank sides to one that is indented. But it is not worth while to pursue this subject any further, since the practice in a printing-office, except for purposes of business, ought to be strictly prohibited, as incompatible with *the good of the chapel:* and which prohibition I take care to enforce.

be able to get through this fresh taking, with what remains of the last, so as not to impede the imposition of the sheet.

Another method may be adopted, viz. for each person to agree to receive regularly of the different takings a certain number of pages; but if this plan be followed, the bulk of the copy must not be subject to the inspection of the companionship, but kept by the overseer, and dealt out by him as it is wanted, or it will inevitably cause contention; for the compositor likely to be first out of copy, if he have free access to that which remains unfinished, will observe whether the next taking be *fat* or *lean*—if the latter, he will hold back and loiter away his time, in order to avoid it, and thus materially delay the work. On the other hand, if this taking appear to be advantageous, and there should happen to be two or three of the companionship out of copy at the same time, a sort of scramble will take place who shall have it, which will end in dispute and confusion—on no account, therefore, should the copy be open to examination, unless for the purpose of ascertaining the charge per sheet.

With manuscript copy it will be better to take one from the other in such a manner as not in the smallest degree to delay the imposition, or block up the letter; that is, that no compositor may retain the making-up too long by holding too large a taking of copy. Compositors are apt to grasp at a large portion of copy, with the view of advantage in the making-up, though nine times in ten it will, as before observed, operate as a loss to them, by their eventually standing still for want of letter. If by mistake too much copy has been taken, the compositor should hand a part of it to the person following in the making-up, to set up to himself.

If parts of the copy should be particularly advantageous or otherwise, each of the companionship should throw for the chance of it; the person to whom it may fall, if he have copy in hand, must turn that copy over to him who is about to receive more copy; but for trifling variations from the general state of the copy, it cannot be worth the loss of time necessary to contest it; though it frequently happens that a litigious man will argue half an hour on a point that would not have made five minutes' difference to him in the course of his day's work.

If one of the companionship absent himself from business, and thereby delay the making-up, and there is the smallest probability

of standing still for letter, the person who has the last taking must go on with this man's copy, whether it be good or bad.

Making-up of Letter.

THE number of the companionship, if possible, should always be determined on at the commencement of the work, that they may all proceed upon an equal footing. It should be well ascertained that the letter appropriated for the work will be adequate to keep the persons on it fully employed.

If any part of the matter for distribution, whether in chase or in paper, be desirable or otherwise, for the sorts it may contain, it should be divided equally, or the choice of it thrown for.

When a new companion is put on the work after the respective shares of letter are made up, and if there be not a sufficiency to carry on all the companionship without making-up more, he must make up an additional quantity before he can be allowed to partake of any part of that which comes from the press.

Making-up of Furniture.

THE overseer, where one is employed, makes up the first, and indeed, all subsequent *new* furnitures, for the compositors (see p. 534). That is, as far as providing proper chases, gutters, backs, heads, side and foot sticks—the formes are then left to the compositors.

Imposing and Distributing of Letter.

THE person to whose turn it falls to impose, must lay up the forme for distribution; but as continual disputes arise on this subject, and as it can only be ascertained by comparing the number of pages composed, with the number imposed by each person, we therefore recommend their keeping an exact account of these particulars.

It may happen, from one of the companionship absenting

himself, that his former share of letter remains undistributed at a time a second division is taking place; under these circumstances, he must not be included in this division. In the event of a scarcity of letter, if any man absent himself beyond a reasonable time, his undistributed matter should be divided equally among his companions, and when he returns, he may then have his share of the next division.

Correcting.

THE compositor, whose matter is in the first part of the proof, lays up the formes on the imposing stone, and corrects. He then hands the proof to the person who has the following matter. The compositor having matter in the first and last part, but not the middle of the sheet, only lays up the formes and corrects his matter; the locking-up is left to the person who corrects last in the sheet.

A compositor having the first page only of the sheet, is required to lay up one forme; also to lock up one forme if he has only the last page.

If from carelessness in locking up the forme—viz. the furniture binding, the quoins badly fitted, &c.—any letters or even pages should fall out, the person who has thus locked up the forme must immediately repair the damage. But if from bad justification, or in leaded matter the letters *ride* upon the ends of the leads, the loss attending any accident from this circumstance must fall upon the person to whom the matter belongs.

It is the business of the person who locks up the forme, to ascertain whether all the pages are of an equal length; and though a defect in this respect is highly reprehensible in the person to whom it attaches (whose duty it is to rectify it), yet if not previously discovered by the locker-up, and an accident happen, he must make good the defect.

Formes will sometimes remain a considerable length of time before they are put to press. When this happens, and particularly in the summer, the furniture is liable to shrink, and the pages will, in consequence, if care be not taken, fall out; it is therefore the business of the person who has locked up the forme, to attend

to it in this respect, or he will be subject to make good any accident which his neglect may occasion.

When formes are wrought off, and ordered to be kept standing, they are then considered under the care of the overseer. When they are desired to be cleared away, it is done in equal proportions by the companionship. During the time any formes may have remained under the care of the overseer, should there have been any alteration as to form or substance, such alterations not having been made by the original compositors, they are not subject to clear away those parts of the forme that were altered.

If the pressmen unlock a forme on the press, and from carelessness in the re-locking up, any part of it fall out, they are subject to the loss that may happen in consequence.

The compositor who locks up a sheet takes it to the proof-press, and the pressman, after he has pulled the proof, puts by the formes in the place appointed for that purpose.

Transposition of Pages.

EACH person in the companionship must lay down his pages properly on the stone for imposition. The compositor, whose turn it is to impose, looks them over to see if they are rightly placed; should they, after this examination, lay improperly, and be thus imposed, it will be his business to transpose them; but should the folios be wrong, and the mistake arise from this inaccuracy, it must be rectified by the person to whom the matter belongs. Pages being laid down for imposition, without folios or head-lines, must be rectified by the person who has been slovenly enough to adopt this plan.

THE PRESS.

CHAPTER III.

Construction of the original Printing Press by Blaew of Amsterdam—Perspective and Geometrical Views of every part of the Press—Of Press-work—Practical directions particularly applicable to those Presses—Putting up a Press—Making ready—Inking—Beating, &c.—Pulling—Wetting Paper—Balls—Rollers—Printing in Red, or other Colours with Black—Mixing and grinding Colours with Varnish—Rules and Remedies for Pressmen.

THIS, and the following three chapters, will be appropriated to descriptions of the various machines and apparatus, as far as have come within my knowledge, which from the time of the origin of the art have been devised for the purpose of taking off the impression after all the foregoing described processes have been completed; or, in fact, the *actual printing*. The division of the subject will be according to the order of the invention: first, of those machines which are worked in every part of the process by the judgment and power of men brought up to the business, as a profession; and these, for distinction sake, I have denominated Manual Printing Presses. The second division will treat of Printing Machines, or Engines, in which the art of the engineer is every thing, and the printer, nothing; whether the motive power be that of steam, horse, or man, the impulse to the machinery being unaided or undirected by professional judgment, or any effort of mind.

On the Construction of the Original Printing-Press.

HAVING endeavoured to lay before my readers the necessary information connected with the COMPOSITOR'S business, I shall

now call their attention to that important branch of the art—the PRESSMAN'S—a branch which is the very end and consummation of all the compositor's previous care and labour—a branch which, if in the least degree neglected, will cause all the printer's pains and skill in display, all his expenses in beautiful type and accurate correctors, to be passed over disregarded.*

What is generally termed *fine work*, has been progressively improving since the time of the ingenious Baskerville; and it may with truth be said, that the British press at this moment stands unrivalled for the beauty of its execution; but this, like many other improvements, has had its attendant evils. The wages paid for fine work were generally double, often treble, the amount of those allowed for the common. This great disparity rendered the pressmen careless and indifferent in their execution of common work, which, a few years since was rapidly degenerating, but the emulation and judgment lately called into action, together with the more general adoption of the superior machinery, has brought the art into a degree of creditable repute which it never before possessed. But before the practical directions to the Pressmen are entered upon, it will be necessary to make some observations on the Machine itself, and the various improvements which have lately been attempted upon it.

A press being constructed on principles of mechanism which combine much simplicity and harmony, when kept in proper order by an intelligent pressman acquainted with its principles and operation, is capable of producing a clear and perfect impression; but, unfortunately, few pressmen can be found, possessing mechanical talent or ingenuity, or who feel sufficient interest or due pride in the execution of their work. Unless they are engaged on established high wages, their aim, generally, is to get through as much work as possible, with little regard to neatness and uniformity.

A perspective representation of the press, as used up to the time of earl Stanhope's improvements, has been given at p. 415; it will now be necessary to exhibit the various parts properly dissected and explained. Mr. Moxon is the first author we have who gave an accurate description of the press, and engravings of its parts. His description was copied nearly *verbatim* by

* It is a somewhat curious circumstance that one author of a Printer's Grammar never mentions either press or pressmen. See Preface.

Luckombe, and his engravings were perfect fac-similes of Moxon's. Mr. Stower took his description from Luckombe, but accompanied it with newly-drawn cuts, which cuts are given in the present work; and as to the description, it required but very little amendment. It is somewhat remarkable, that the name of every part of the press—the technical terms used—and operations described, remain the same to the present day as in Moxon's time. I do not know of even a new part, or new term having been introduced till the iron press of lord Stanhope had been invented, when the coffin, plank, and stone were dispensed with, and the part substituted was designated as "the table"—the cheeks, head, feet, and rails, also, having been abandoned for an iron frame-work, capable of sustaining all the action of the mechanism, was termed "the staple"—the ribs and cramps became "the slides"—the bar and handle resolved themselves into "the lever and coupling bar," &c. &c.

Various alterations and improvements in the construction of this press have taken place since the introduction of the art of printing into this country. William Jansen Blaew, about the year 1620, made considerable improvements in it, which were generally adopted throughout Holland several years before they were introduced among us. The press was, at one time, in the early age of typography, rather a fashionable (and could there be one more appropriate?) ornament to the frontispiece of a book, having been adopted by a number of printers. From the fac-similes of these engravings, as given by Mr. Dibdin, we may gather some idea of the rude construction of this machine about a hundred years before Blaew.—See Decam. vol. ii, day vi, pp. 118—121.

This ingenious artist was an eminent printer at Amsterdam, and also famous for his astronomical and geometrical productions. In the early part of his life he was bred up to joinery, in which employment he served an apprenticeship. Being of an inquisitive disposition, he rambled to Denmark, about the time the famous Tycho Brahe established his astronomical observatory, by whom he was entertained, and under whose instruction he was employed in making mathematical instruments, which curious art he greatly improved; and it was generally reported that all or most of the sidereal observations published in Tycho's name, were made by Blaew, as well as the instruments.

Before these observations were published to the world, Tycho

to gratify Blaew, gave him the copies of them, with which he went to Amsterdam, and there practised the making of globes according to those observations. As his trade increased, he found it necessary to deal in geographical maps and books, and became so particularly curious in his plates, that many of the best globes and maps were engraved by himself; and by his frequent connexion with the printing of books, got so good an insight into the practical part of the art, that he set up a printing-office; he here soon found the inconveniences attending the structure of the old presses, which induced him to contrive remedies, and in that succeeded so much to his expectation, that he caused nine of them to be made, which he named after the nine Muses.

The excellence of the improvements soon became known to other printing-offices, which induced their proprietors to follow Blaew's example, so that presses of his construction became, in the course of a few years, almost general throughout the Low Countries, and from thence, notwithstanding the opposition of the ignorant, were introduced into England.

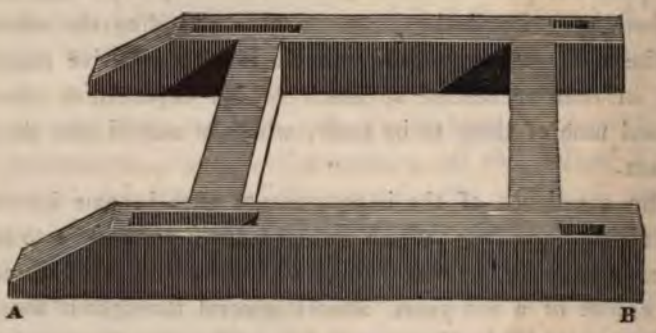
Many improvements were made subsequently on Blaew's press. The engraving before referred to is an accurate description of the common press, which has been in use from the time of Moxon. It consists of the following parts:

Feet,	Eye of the Spindle,	Iron Ribs,
Cheeks,	Shank of the Spindle,	Wooden Ribs on which the Iron Ribs are fastened,
Cap,	Toe of the Spindle,	Stay of the Carriage,
Winter,	Platten,	Coffin,
Head,	Bar,	Plank,
Till,	Handle of the Bar,	Gallows,
Hose,	Hind-posts,	Tympans,
Garter,	Hind-rails,	Frisket,
Hooks,	Wedges of the Till,	Points and Point Screws.
Spindle,	Carriage,	
Worm,	Outer Frame of the Carriage,	
Nut,		

These are the names of the different parts of the press; but, to convey a more perfect idea of its construction, perspective and

geometrical views of the principal parts are here given in the order in which a press is generally put up.

Fig. 1.—*The Feet.*



(The measurements will be understood to be feet and inches.)

The feet are 3 : 1 long, A to B, and 0 : 5 square; the distance asunder, 1 : 10. 0 : 3¾ from each end, the mortise holes are made on the middle of the breadth of the upper side of the foot, for receiving the tenons of the cheeks and hind-posts. The mortise holes for the cheeks are 0 : 8 long; those for the hind-posts, 0 : 2½, and 1 : 7 asunder. For the sake of ornament, the ends are bevelled off according to the taste of the joiner, but care should be taken not to weaken them by so doing.

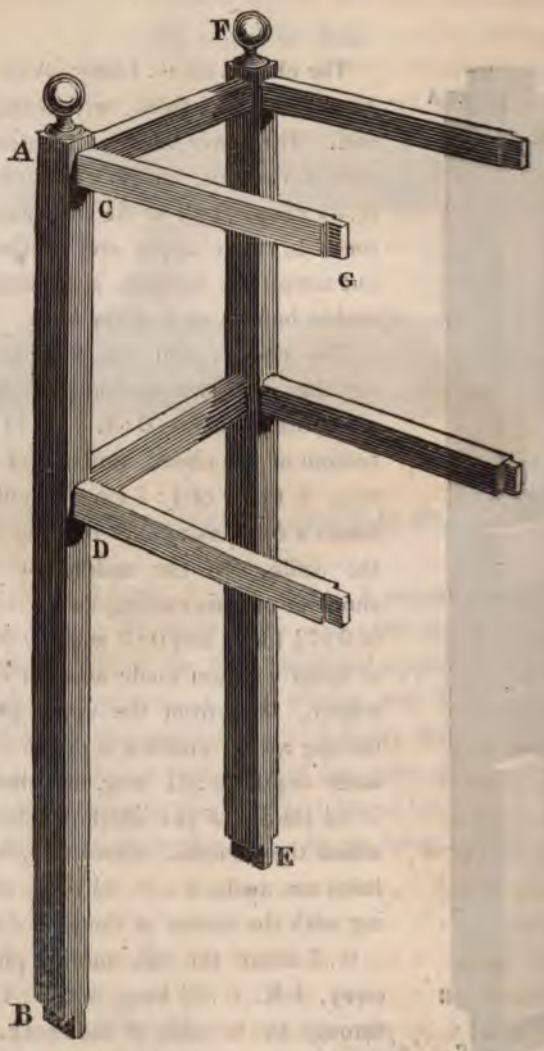
Fig. 2.—The Cheeks.

The cheeks are 6 : 1 long, A to B; 0 : 8½ broad, and 0 : 5 thick, with a tenon at each end. The lower tenon C, enters the fore part of the foot, and is cut 0 : 8 long, and 0 : 3½ deep, B C, to fit the mortises. The tenon L, at the upper end of the cheek, is cut across the breadth, and enters the cap within half an inch of the top.

The cheeks and the feet are fastened together with two wooden pins, distant from each other about 0 : 3. 2 : 11 from the bottom of the cheek, one half of the thickness, E to F, of 1 : 1 long, is cut away, to admit a free passage for running in and out the coffin. In the middle of the lower shoulder of this cutting-away, is a mortise of 0 : 7½ long, and 0 : 3 wide, *a b*, in which is fitted a tenon made at each end of the winter. 0 : 4 from the upper part of this cutting away, another is made, *c d*, of the same depth, 0 : 2½ long, to admit a block 0 : 2½ thick, of the width of the cheek, on which the till rests. Above this, two mortise holes are made, *d e*, 0 : 2½ long, corresponding with the tenons at the end of the till.

0 : 3 above the till, another piece is cut away, I K, 0 : 9½ long, and 0 : 4 wide, half through the breadth of the cheek, to admit the depth of the head. Just above this cutting-in, is made a square mortise in the middle of the cheek, *g h*, 0 : 2 wide and 0 : 8 long, for the tenons of the head to play in. These proportions being observed, D E will remain 1 : 10; F G, 0 : 4; G H, 0 : 5; H I, 0 : 3; K L, 1 : 2½.

Fig. 3.—*The Hind Posts and Rails.*



The height or length of the posts, from A to B, 4 : 2; their distance asunder, from A to E, 2 : 2; length of the rails, from C to G, 1 : 6; their distance asunder, from C to D, 1 : 3½.

Six rails are fitted into the hind-posts, two of them behind, and

two on each side; one of the hind-rails to be placed 0 : 2 from the top, the other level with the upper side of the winter. These two rails are tenoned at each end, and made so long that the posts may stand even with the cheeks. These tenons are let into mortises made in the insides of the hind-posts, and fixed in with wooden pins.

The side-rails are tenoned at each end, and let into the mortises made in the cheeks and hind-posts, and fastened in the same manner by the hind-rails.

Fig. 4.—*The Cap.*

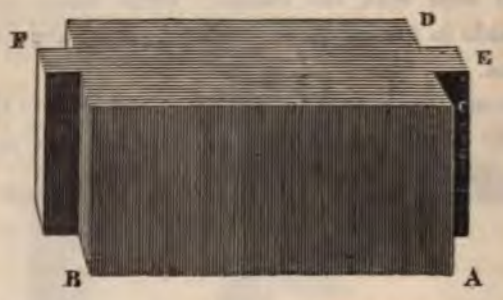
The cap is 3 : 0 long, 0 : 11 wide, and 0 : 4 thick. The front and two sides are ornamented with a neat moulding; the front projecting about an 0 : 1½, and the sides 0 : 3½, over the cheeks.

About 0 : 3 from each end, two mortise holes are made, to admit the tenons of the cheeks; also two holes through which the head bolts pass.

In the centre of the lower hind-rail, a strong leather strap is either nailed or fastened with a screw, the other end being fastened in a similar manner, to the coffin (fig. 17), this is called "the stay girth," its purpose being to stay the coffin from running too far out, or off of the ribs.

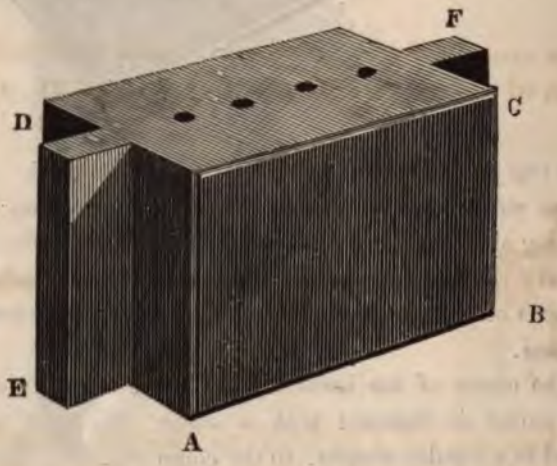
On the top side-rails and hind-rail, the back-board is placed, for defending the ribs from dirt, and also affording a convenient shelf for the pressmen.

Fig. 5.—*The Winter.*



The length of the winter, A B, exclusive of the tenons, is 1 : 11; the width, C D, 0 : 9½; the depth, A C, 0 : 9. The projection of each of the tenons, E F, is 0 : 2. These tenons are made the whole depth of the winter, to fit and fall into the mortises in the cheeks.

Fig. 6.—*The Head.*



The length of the head, A B, exclusive of the tenons, is the same as the winter, viz. 1 : 11; the width, A E, 0 : 9, and the depth, B C, 0 : 10½. The projection of the tenons, D F, 0 : 2. The front of the head projects ½ in. over the range of the front of the cheeks. The tenons, like the winter, are also cut from the top

to the bottom of the head, and made to fit easily into the mortises in the cheeks.

In the centre of the bottom of the head, a hole is cut about 0 : 4 square and 0 : 3½ deep, to admit the brass nut in which the screw of the spindle works. This nut is secured and kept in its proper place by means of iron bolts, about ¾ in. square and 0 : 9½ long, which go quite through the head, having at their ends a hook *a*, turned square, to clasp upon the under side of the nut. At the top of these bolts there are screws *b*, that project about an inch above the head, which, by the help of nuts and washers draw the hook of the bolts close against the nut, and thereby keep it in a fixed and perpendicular position.

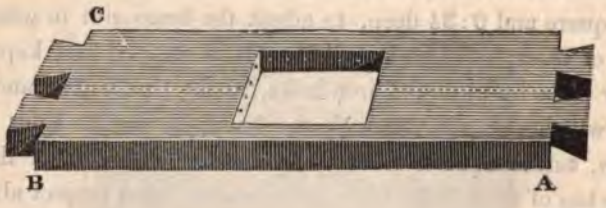
Fig. 7.—*The Nut-bolt.*

In the centre of the top of the head, a small round hole is bored, to admit oil into the nut and spindle when necessary.

Fig. 8.—*The Head-bolt.*

0 : 3 from each end of the head, two bolts pass through that and the cap, of 1 : 8 in length, and about ¾ in. square. These bolts have a square head, *a*, which stop against, and are let in level with the under side of the head. They have coarse screws at the top, *b*, which are furnished with nuts and washers. Upon these bolts rests the weight of the head, and by them the head is screwed up or let down as occasion requires.

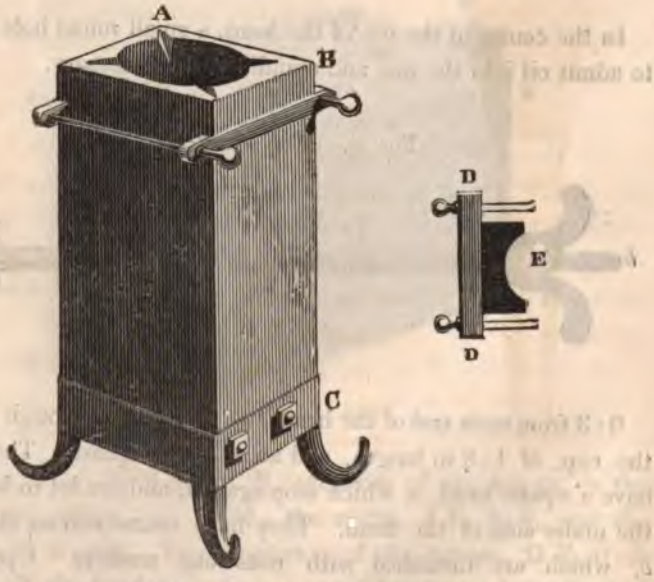
Fig. 9.—*The Till, or Shelf.*



The till is made of mahogany, or beech, 1 : 11 long, A B; 0 : 9 wide, B C; and 0 : 2 thick. It is in two parts, and has two dove-tail tenons at each end, about 0 : 1½ long, 0 : 1 broad, and 0 : 1½ distant from each other: these tenons are laid in the mortises in the cheeks.

In the middle of the till, a square hole of 0 : 4¾ is made, lined with brass plate about $\frac{1}{16}$ in. thick, through which the hose passes. This square should be made to fit the hose with much nicety.

Fig. 10.—*The Hose, Garter, and Hose Hooks.*



The side, A B, is 0 : 4¾; the height, B C, 0 : 10.

The hose is composed of a long, square box, or block of wood,

through which is turned a hollow cone, fitting the conical or tapering part of the spindle. The spindle is held firmly in this cavity of the hose, by the following arrangement: to the inner face of the piece DD, and the corresponding pieces on the other side of the hose, are fixed curved pieces, as shewn at E, in the small figure. This is called the half-moon garter, and is used to hold the spindle by the groove E [see figure of spindle], by tightening the screws shewn in the figure of the hose. The hose is cased with brass, or thin sheet iron, on every side, from the piece DD, downwards; and the hooks shewn at C, in the figure, are fixed to the lower end by nuts and screws.

Fig. 11.—*The Spindle.*

Length of the worm, A B, 0 : 5; B to C, 0 : 3½; distance across, *a a*, 0 : 3; C D, 0 : 1¼; E to the toe F, 0 : 11.

The worm of the spindle should be made with such declivity, that it may come down at an assigned progress of the bar. In a whole revolution of the spindle in the nut, the toe ought to come down 0 : 2½; but it seldom, at work, makes more than one quarter of a revolution, at one pull; in which sweep it comes down but ⅝ of an inch.

The length of the worm is 0 : 5, and its circumference, 0 : 7¼. The whole length of the spindle is 1 : 9. The bottom of the spindle is called the toe, which is about a ¼ in. in diameter, made of well-tempered steel, that by long or careless use the point of pressure wear not on one side but remain in the axis of the spindle.

Fig. 12.—Bar, Handle, and Cutch.

A B, 0:4; B C, 1:5; C D, 1:4; E (the handle) the same length.

The bar is made of wrought iron, of about 3:0 long, and its greatest thickness, in circumference, 0:5, except the shoulder.

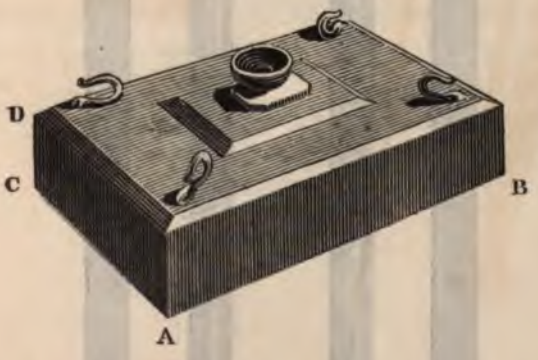
The square pin, about 0 : 1½ thick, and 0 : 3 long, from the shoulder, enters the eye of the spindle, which it should be made to fit with a great degree of nicety. At the end of this pin an eye is made, through which an iron key is put to fasten it perfectly tight to the spindle.

The wooden handle is 1 : 8 long, and, in the thickest part, 0 : 10 in circumference. A taper hole is made through the handle, into which the small part of the bar enters, and is fastened by a screw at the end of the handle.

About 0 : 4 from the shoulder it is bent, agreeable to the above sketch, which lies ready to the pressman's hand, that he may catch at it to draw the handle of the bar within his reach.

The catch for the bar is made of two pieces of beech, in the form of a cross. The short piece A B, is 0 : 8½ long, and 0 : 2 wide, bevelled at each end, and in the centre of the side which is screwed against the cheek, a piece is cut out, about 0 : 2 long and ½ in. deep, to admit the other piece C D, of 0 : 10 long, tapered off to the end on which the bar rests. This cross is screwed against the cheek, and fixed in such a position, as to retain the bar on its rebounding from the forme.

Fig. 13.—*The Platten.*



The platten is made of mahogany, 1 : 7 long, A B; 0 : 13 wide, A C, and 0 : 4 thick, C D. The face of the platten must be perfectly level and smooth. Near the four corners, on the upper side,

four iron hooks are placed, with their shanks wormed and screwed, and leaning towards the platten plate.

In the centre of the platten the iron platten-plate is let in $\frac{1}{4}$ in. deep. This plate is 0 : 8 long, 0 : 4 broad, and $\frac{1}{4}$ in. thick. In the middle of it an iron frame, 0 : 2 square, and $\frac{1}{2}$ in. high, is placed to receive the stud of the circular brass platten-pan. The stud is made to fit nicely into the iron frame, which keeps the pan firm and steady, and may be taken out with ease if required.

In the middle of the bottom of the pan is a small steel centre hole in which the toe of the spindle works.

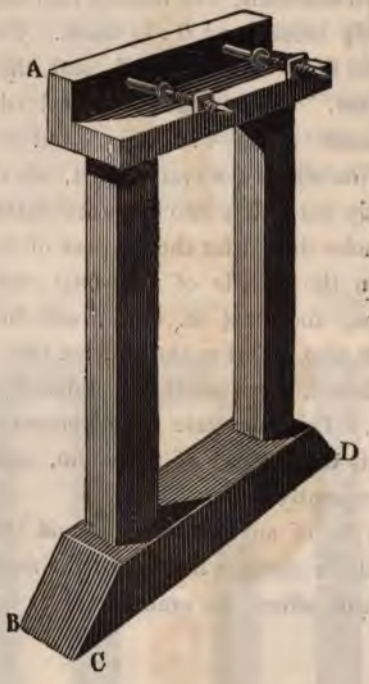
Fig. 14.—*The Carriage and Ribs.*

The carriage, A B, is a frame of 5 : 0 long, and 2 : 2 broad, A C, on which the ribs are placed. The two end-rails are each 0 : 4 thick, and the side-rails, 0 : 2½ thick.

Between the two side-rails, are framed into the end-rails, two wooden ribs, 0 : 2½ broad, and 0 : 1½ thick. They are placed at an equal distance from each side-rail, and the same distance between each other. Upon these the steel ribs are fastened. These ribs are made about 4 : 8 long, and 0 : 1 thick. The uppermost sides, on which the cramps rest, are of a convex form, the others perfectly flat. The two ends are flattened to about a ¼ in. thick, and holes drilled for the purpose of fastening them to the end-rails. In the middle of the outer end of each rib, a small piece of iron, about a ¼ in. thick, with holes drilled in it, projects, which is also nailed to the wooden ribs. The inner side of each rib is polished, to admit the shoulder of the two first and two last cramps. This is a late improvement on the common press. It prevents the shaking of the coffin, and the slur on the work which consequently followed.

The ribs must be of an equal height and thickness, and lie exactly horizontal, in straight lines; for the smallest irregularity in this respect will affect the cramps, so as to render some of them useless.

Fig. 15.—*The Fore-stay.*



The fore-stay is made of four pieces of wood, mortised together for the purpose of supporting the end of the carriage, to which it is screwed by means of two-inch screws, of about 0 : 5 long, with nuts. Height, A B, 2 : 5 ; width, C D, 1 : 8.

Fig. 16.—*Spit and Wheel.*

The axis, or spit, is a straight bar of iron, about $\frac{3}{4}$ in. square, and is about 0 : 3 longer than the whole breadth of the carriage. The further end of it is filed to a round pin, $\frac{3}{4}$ in. long, and $\frac{3}{4}$ in. in diameter; the near end is filed away to another round pin,

which is 0 : 2¼ long. At 0 : 1¼ from this end is filed a square pin, ¾ in. long; and within ½ in. of the end is another round pin, with a screw and nut on it.

On the square pin is fitted a winch, on which is placed the rounce, five inches long.

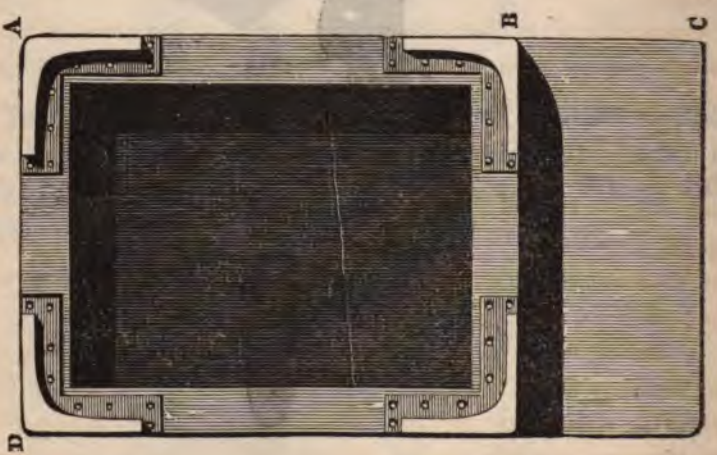
The round ends of the spit are hung upon two iron sockets, fastened with screws on the outside of the two outer rails of the carriage.

The wheel, or girth barrel, is made of beech, of such a length that it may play easily between the ribs; and of such diameter, that in one revolution a length of girth may wind about equal to half the length contained between the fore-end iron of the inner tympan, and the inside of the rail of the inner tympan. Usual dimensions, A B, 1 : 0; length of the wheel, or barrel, B C, 1 : 2; diameter of the same, 0 : 5; C D, 0 : 11; length of the handle, 0 : 5.

Fig. 17.—*The Coffin, Plank, and Cramps.*

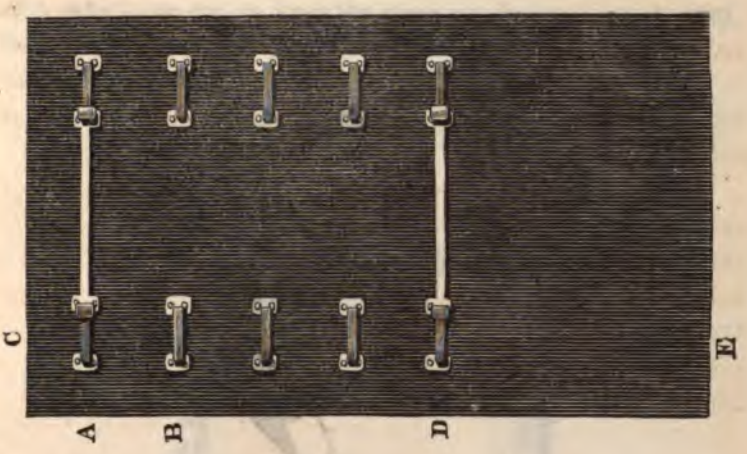
Front View.

Off Side.



Near Side.

Fig. 18.—*Back View.*



The plank of the coffin, A C, is now invariably made of mahogany, 3 : 6 long, 2 : 0 wide, and 0 : 1¼ thick, on which is fastened the cramps and the coffin. The coffin is a square frame; AB front view, 2 : 7 long, 2 : 0 wide, and 0 : 3 deep; in this the stone is bedded.

Upon each of the four corners of the coffin an iron plate, called a corner-iron, is let in and screwed perfectly level with the wood work, with return-sides about 0 : 6 long each side, ⅛ in. thick, and 0 : 2¼ broad. Upon the upper outer sides of each of these plates another strong iron is fastened with two or three rivets through each side. This iron is ½ in. deep; the outer angles only are square, but the inner angles are obtuse, being sloped away from the inner angle, towards the farther end of each inner side, for the purpose of securing the chase with quoins.

At the hinder end of the frame of the coffin, two iron joints are fastened, by means of an iron plate, screw and nut, to receive the tympans, which have also two half-joints to match. These keep the tympans perfectly steady, without which it would be impossible to keep in register.

The back view shows the manner in which the cramps are fixed. The dimensions as in the last figure; the distance of the cramps, AB, 0 : 5; AC, 0 : 3; DE, 1 : 3.

Fig. 19.—*The Gallows and Sockets.*

On the hind part of the plank, at 0:3 distant from each side, are nailed the sockets to receive the gallows, on which the tympans rest. The width of the gallows is 2:0, its height 0:9. The sockets are 0:7 long, 0:2½ wide, and 0:2½ deep. The socket holes are cut slanting, on which the gallows reclines. The sockets are screwed or nailed down on the plank, and may be easily moved backward or forward, to raise or lower the tympan, agreeable to the wish of the pressman.

In the space on the plank, between the sockets, one of the girths is fastened on with a thumb screw, which answers the purpose much better than nails, as they injure, and frequently split the plank.

The Press Stone.

Marble stones are the best; and could the bedding of them in the coffin be always depended upon, they would turn out to be the cheapest. Purbeck, being much cheaper than marble, is now generally used.

The stone should be of an equal thickness, about ¼ in. less than the depth of the inside of the coffin, as the bedding will raise it

the necessary height above the surface of the coffin. Its length and breadth must be ¼ in. less than the length and breadth of the inside of the coffin, to admit of justifiers between the stone and coffin, which are put to keep the stone steady after it is bedded. The face should be perfectly smooth and level.

Fig. 20.—*The Outer Tympan.*

The outer tympan is a square frame, both sides and one end of which are made of beech, and the other end of iron. It is 2 : 0 wide, AB, and 2 : 7 long, AC. The breadth of the end, which is fastened to the coffin by an iron match-joint pinned on to another half joint, 0 : 1¼ wide, and 0 : 1 deep; the two sides run taper from this to the iron end, which is about the thickness of a window casement, and ½ in. wide. Upon the outer edge of this iron, about 0 : 1½ from the end of it, are made two iron half joints, to contain

a pin, about $\frac{3}{4}$ in. in circumference, which, entering this half joint and the match-joint in the frisket, fastens it securely, and enables it to work easily on the tympan.

In the middle of each side of the tympan, a mortise is made through, $\frac{1}{2}$ in. wide, and 0 : 6 long, to receive the square shanks of the point screws, and to allow them to slide easily backward and forward.

Fig. 21.—*The Inner Tympan.*

The inner tympan is also a square frame, 1 : 10 wide, CB, and 2 : 6$\frac{1}{2}$ long, AB, the sides and one end of which are also made of wood, and the other end of iron. It is made so much shorter than the outer tympan, that the outer edge of the iron of the inner tympan may be within the inner edge of the iron of the outer tympan; and it is made so much narrower than the inside of the outer tympan, that a convenient space may be allowed to paste a vellum between the inside of the outer tympan and the outside of the inner tympan.

The two tympans are fastened together by hooks fixed on the outer tympan, and eyes on the inner.

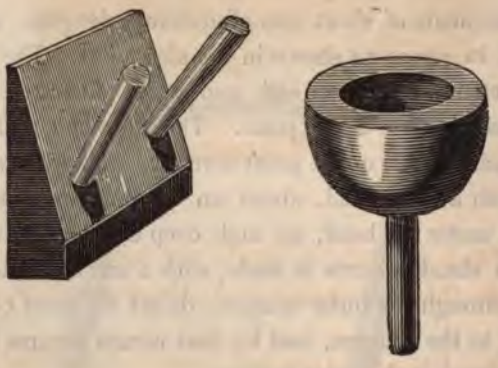
Fig. 22.—*Points and Point-screws.*

Points are made of sheet iron of different lengths, about $\frac{1}{16}$ in. thick, and in shape as shewn in the above cut. The spur of the point is riveted at the small end, and projects about $\frac{5}{8}$ in; the top of it is filed away to a fine point. The large end of the point fits into the square shank of the point screws. These screws are made of iron, with a thin head, about an inch square, and a square shank just under the head, an inch deep and half an inch square. Under this shank a screw is made, with a nut and washer, which, when put through the outer tympan, draws the head of the shank close down to the tympan, and by that means secures the point in its proper place on the outer tympan.

Fig. 23.—*The Frisket.*

The frisket is a thin iron frame, made of different sizes, with match-joints at one end, through which an iron pin is placed. About the middle of the near side of the frisket a small piece of iron projects, called a thumb-piece. The usual length is, AB, 2 : 2½; width, AC, 1 : 9.

Fig. 24.—*The Ball-Stocks and Ball-Racks.*

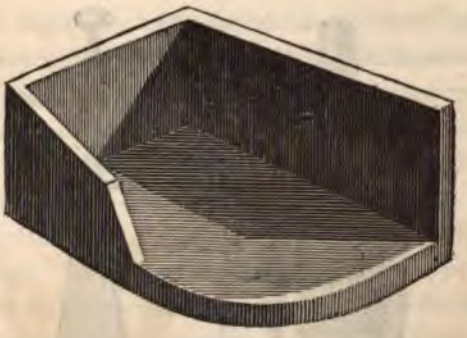


The ball-stocks are made of dry, well-seasoned elm, and turned hollow, of a conical form; their greatest diameter 0 : 5¼, and their length 0 : 4. The handle of the stock is made of beech, 0 : 4½ long, and 0 : 1 in diameter.

The racks are also made of elm and beech, the sockets of which are elm, and the pins beech. The sockets of the first rack, which is nailed on the near cheek, 2 : 9½ from the bottom, is 0 : 9 wide, and 0 : 4½ long; that end of it which receives the pins is 0 : 1½ thick, the opposite end only ½ in. thick. The pins are 0 : 9 long, and distant from each other 0 : 3.

Another rack, double the width, and containing four pins, is also fastened to the near cheek, 0 : 8 from the top.

Fig. 25.—*The Ink Block.*



The ink block is made of beech, the bottom of it 0 : 2, and the sides $\frac{3}{4}$ in. thick; its length 1 : 1, the depth 0 : 4, and width 0 : 9.

This block is fastened to the near upper rail and hind post; and the left hand outer corner of it is cut away.

A few years since a great improvement was effected by having the ink-block made of cast iron, for the following reason: it had been found necessary for the purpose of enabling the men to work the fine and stiff inks in cold weather, to have in each press-room what was denominated a moveable ink-stand; this was a small square table, with an iron plate for the top, under which was a shelf to contain a lamp to warm the ink, and render it free to work; this was, of course, moved to the side of each press as wanted, but often proved a cumbrous article in a crowded room, when not wanted. The iron ink-block, as a complete substitute for the wooden one screwed to the cheek of the press, with a little shelf underneath it, answered every purpose of the above-described apparatus; with this additional advantage, it kept the ink cooler in hot weather.

Fig. 26.—*The Brayer and Slice.*

The brayer is also made of beech, and turned round on its sides, and flat on the bottom; its length, including the handle, is about 0 : 7, and the bottom part about 0 : 2½ in diameter.

The slice is a small iron shovel, the broadest part about 0 : 4, and about ⅛ in. thick. Its length, including the handle, is about 0 : 8.

Bank and Horse.

The bank is a deal table, 3 : 4 long, 1 : 10 wide, and 3 : 0 high. About 0 : 5 from the bottom, a board is placed within 0 : 2 of the length and breadth of the bank, and fastened to the legs, which serves as a convenient shelf for pressmen to lay their worked-off heaps.

The horse is also made of deal, 2 : 2 long, and 1 : 8 wide, forming an angle of about forty-five degrees, 0 : 6 of the highest end of it rising nearly to a perpendicular. This horse receives the wet paper, and is placed on the bank near to the tympans.

PRACTICAL DIRECTIONS TO PRESSMEN, APPLICABLE TO THE PRESSES LAST DESCRIBED.

CAREFUL, ingenious, and sober pressmen stand high in the estimation of every master-printer; and it is to be lamented that so few endeavour to merit that eminence. I shall now lay down a few directions, which, if properly attended to, will enable the pressman to do credit to himself, and justice to his employer, and preserve that superiority which now so eminently distinguishes the British press.

§ 1. *Of putting up a Press.*—This is properly the work of a printer's joiner; but a printer should know how to direct even a strange joiner to set up and fasten a press ready for its working.

This knowledge every pressman should be anxious to obtain, as he will then be able to detect and remedy those defects which the common press is so liable to from untoward accidents; I therefore recommend particularly to his attention the foregoing description of the parts of the common press, which will give him a thorough knowledge of its principles and operation.

The joiner having set together the frame, viz. the cheeks, feet, cap, head, till, winter, hind-posts, ribs, carriage, &c. the pressman directs and sees him perform as follows:

Before the head is put into its place, the pressman rubs the whole tenoned ends and tenons with soap or grease, and also the mortises which the head slides in, and so much of the cheeks as the ends of the head work against, that it may the easier work up and down.

The feet must be placed upon an horizontal level floor, and the cheeks perpendicularly upright, the stays or braces must be placed so that the press may be kept in the most steady and stable position, in order to give a check to the force of the hardest pull and most violent blow the bar may give by rebounding against the further cheek, if by chance it slip out of the pressman's hand. This consideration may direct him to place one brace against the end of the cap that hangs over the near cheek, and in a range parallel with the fore and hind side of the cap: for the more a brace stands aslope to the two parallel sides, the less it resists a force offered to the end of them, viz. the near end of the cap, which is one main stay to the whole press. If he places

another brace against the hinder corner of the further end of the cap, it will resist the spring of the bar, when it may slip out of the pressman's hand; and placing two other braces, one against the near corner of the hind side of the cap, and the other against the further corner of the fore side of the cap, the press will be sufficiently braced up, if the room will afford convenience to place the further end of the braces against it.

By convenience is meant a firm solidity to place the end of the braces against, be it either a stone wall, brick wall, or some principal post, or a girder, &c. that will not start or tremble at the force of a pull. The braces ought to be straight, and of substance strong enough proportionable to their length; and, if possible, to be fixed in such a position that they may stand in the same straight line with the upper surface of the cap, viz. that the further end of the brace neither fall lower nor rise higher than the upper side of the cap. Neither ought the brace, though thus placed, to stand aslope or askew, that is, make unequal angles with the side of the cap it is fastened to, but stand square, and make right angles with the respective sides of the cap; because in those positions the braces best resist the force of continued pulls.

But though this be the strongest, firmest, and most concise method for bracing up a press, yet the room the press is to stand in will not always admit of conveniences to place the braces thus; the pressman should, however, avail himself of these rules as far as he may be able.

The press being thus fastened, the carriage is laid on; and if the joiner perform his part well in making the wood work, it will first lie exactly horizontal; if not, it must be altered where it is amiss, before the pressman lay the stone, and the stay of the carriage be fitted under the end of the ribs.

§ 2. *Laying or bedding the Stone.*—The carriage being laid on the winter exactly flat and horizontal, and the coffin placed on the ribs, the pressman then lays the stone. Some bed the stone with bran, others with plaster of Paris; but, from long experience, I have no hesitation in saying that brown paper answers the purpose much better; and such a quantity of it should be laid in the coffin as will raise the stone a double pica above the surface of the coffin, which will be reduced by the first pull to a pica, and in a

short time will leave the projection about a brevier, which it ought always to preserve.

When a stone is laid on brown paper, bran, or plaster of Paris, the pressmen sling the stone in two strong cords; then bring it as nearly as they can into an horizontal position, and with great care and caution let it down in such a manner into the coffin as that the whole bottom of the stone touch the bedding at once; lest by an uneven lowering of the stone the bedding be disturbed. Having laid the stone down, they drop a small quantity of water about the middle of the face of it, to try whether it lie truly horizontal, which they ascertain by the standing of the water; if it have an inclination to one side more than another, the declivity is on that side, and the stone must be re-laid.

§ 3. *Setting the Rounce.*—This, when properly done, saves labour and facilitates the work. The girths should be nailed on the barrel of the rounce; when the press is run out, the near girth will be half a turn round the barrel; the off girth will be about three turns round it. Every press should have screws for the purpose of fastening the girths, one fixed on the coffin-plank behind, and another at the head of the coffin; these are screwed and unscrewed with ease, which enables the pressman to fix the rounce in its proper position with very little trouble. Nailing the girths on the plank and coffin injures both, and they frequently give way, occasioning much trouble and loss of time. The rounce should be set in such a position, that the fore-end of the tympan will just lie down and rise free, without touching the fore-edge of the platten.

§ 4. *Hanging the Platten.*—A heavy forme is laid on the press, with two broad-cloth blankets and two sheets of paper on it; or, which will answer the same purpose, a quire of demy paper: it is then run in, and the platten placed on the head of the coffin, hanging down, in order to let the point of the spindle clear the top of the pan, to allow it to fall into the plug destined to receive it. The platten should lay on the forme, in the centre of the press, parallel with the foresides of the cheeks, which should be adjusted with a great degree of nicety. The pressman then pulls the spindle hard down upon the platten, and sets the edges of a paper-board between the bar and the further cheek of the press, to keep

the bar from starting back, or secures it by fastening it well with a rope to the near cheek.

Having provided cord, he makes a noose at one end, and puts it over one of the hooks of the platten, lashing the cord also upon the hose-hook, immediately opposite, and again upon the platten-hook with as much force as possible, and so on till there remain about two feet of the cord; then he begins to wind round these lashings, to draw them close together, and fastens them with two or three hard knots. In the same manner, and at the same time, another person should tie up the opposite diagonal corner of the platten, using equal strength in order to prevent any corner from rising up or hanging down.

§ 5. *Justifying the Head.*—Justifying or scaleboarding the head is, to put into the mortises in the cheeks between the upper sides of the tenons of the head, and the upper sides of the mortises in the cheeks, an equal quantity as to thickness of scaleboards, that when the pressman pulls, the tenons of the head shall have an equal horizontal level cheek.

In justifying the head, the pull is to be made long or short, which is done by putting in or taking out the scaleboard. A heavy forme will require the whole strength of the pressman in order to bring off a clear and perfect impression. The height of the bar is generally made to lie at the command of a reasonably tall or short man.

A long or a soaking pull is when the forme feels the force of the spindle by degrees, till the bar comes almost to the near cheek of the press; and this is also called a soft pull, because it comes down in a soft, soaking, and easy manner; and, on the contrary, the short pull is called a hard pull, because it is suddenly performed.

The pull should be gradual and elastic, which is accomplished by always bringing the bar of a new press, for the first three months, down to the near cheek; and no press can be considered as properly worked down, unless this plan be followed. During the time the press is working down, the head and winter will require an additional scaleboard now and then, which addition will be regulated by observing whether the pull produces an adequate impression. The head should never be screwed up tighter than

can be accomplished with the finger and thumb, in order to preserve in the scaleboard a proper elasticity.

When the pressman justifies the head, he unscrews the nuts of the head-screws, or long bolts, that the weight of the head may draw it down, to make room for the justifiers of the mortises in the cheeks; and when he has put in as many as he thinks necessary, he screws up the head again. He then lays down the tympan on the forme, and runs in the carriage under the platten, and pulls upon it, while his companion screws up the head, as before observed, with his finger and thumb.

The ribs, the tympan-joints, the frisket-joints, the garters, both ends of the rounce-spindle, the nut and spindle, and the toe of the spindle, are all to be well oiled, that they may perform their several offices the easier and lighter, both over and under hand.

§ 6. *Covering the Tympans.*—The tympans are covered with vellum, forrels, or parchment. The skins should be of an equal thickness, and about 0 : 2½ wider, and 0 : 3 longer than the tympans.

Tympans have been sometimes covered with muslin, which, on account of its evenness, would answer the purpose; but it is so apt to stretch that the tympans become slack in a short time, and bag (as it is termed), which occasions a slur on the work.

Having provided some stiff paste, the pressman lays so much of it on the edges of the skin as will cover the tympan, which is also well pasted. He then lays the skin on the tympan, and draws it, regularly, as tight as possible, on all sides. That part of the skin that comes on the grooves of the tympan which receive the point-screws, is cut and wrapt round the inside edge of the groove, which admit a free passage for the screws. After having fastened the skin on the sides of the tympan, he draws it towards the joints which receive the frisket, and with a knife cuts across these joints to let them through the skin; he then puts the frisket pins through the same, and makes that end of the tympan fast. He next proceeds to the lower joints, and brings the skin as tight as he can round that part of the tympan. The point-screws and duck's-bill are then put on, which prevent the skin from starting.

The inner tympan is covered in the same manner, and in order to prevent its warping, a stick or a piece of furniture is placed in the centre of it, till it be perfectly dry.

The skins are put on either wet or dry; if dry, they should be afterwards well wetted, which makes them give for the moment; they are then drawn as tight as possible. As they dry, they contract, and are by this means rendered much tighter than they would be if put on wet.

§ 7. *The Blankets.*—The next matter of importance towards obtaining good press-work is, the substance which is fixed in the tympans to intervene between the type and the platten, in order, when the power is applied, to cause an impression into the substance of the paper. Whatever is used for this purpose it is now become technically correct to denominate The Blankets. For this purpose there has been generally used a kind of blanket, manufactured for the purpose, of a more even fibre than ordinary blanketing, free from knots, and having a very fine surface, or pile: and to vary the impression as different kinds of work might require, very thin, or Welsh flannel, kerseymeres, or fine broad-cloth were used. These are varied by the judgment of the master or pressman, according to the type, paper, ink, &c. with which he works: thus for very close or heavy formes, small type, he must select the softest woollen blanket; for larger type and lighter work he must select the finer flannel, or cloth blanket, and for yet larger type and more open work, he must continue the change to a single kerseymere. Again, a discretion will be required, according to the state or wear of the type—the newer the letter and sharper the ceriphs, the finer may be the work, the stronger the ink, and the harder the impression; while, on the contrary, in order to make type which has been worn appear *well up to paper*, additional softness must be given. The kind of press, also, at which the work is to be done requires to be treated with a due degree of discrimination. A joiner's press, with wood platten, usually requires a soft or soaking pull, and the blankets must be increased accordingly: a Stanhope, or other iron press, will work best with as little in the tympans as possible. In fact, nothing but observation, experience, and good mechanical common sense can guide the judgment of the pressman in this most material point of *making ready*. By the various changes and combinations of his blankets, adding a soft to a hard, or a hard to a soft one; reversing them in regard to the one or the other falling next the type; adding a sheet of paper, or glazed

paper, between, or under, or over, he must, with necessary judgment and patience, regulate his pull according to the various combinations of circumstances which may attend his work.

The introduction of a power-wove cloth, or blanketing, of peculiarly fine, close, and even texture, wove by the power of machinery, by William Whitehead, and Co., of Oakview Mills, Saddleworth, near Manchester, has furnished a material of great advantage to press-work, both letter-press and copper-plate.

The texture of this fabric is of the most even nature that perhaps can possibly be acquired; the great power of the machinery laying the warp and weft in a far superior manner to any thing within the power of the human hand alone. The weft is formed of pickings of the wool best adapted to give a peculiarly soft yet elastic pressure, so as to bring off the most equal impression from the face of the type, or lines of the engraving. To suit every possible purpose it is made of various degrees of fineness. I think about four varieties a necessary assortment. These I number in progression; thus

No. 1, the finest that can be required, cut to suit a demy and royal forme, weighs about . . .	3 oz.
2	5½
3	6
4	7

This arrangement serves with sufficient precision for every description of press-work; and, although costing something more than the common blanketing and flannel, is yet much within the price of broad-cloth and kerseymere. The width is twenty-seven inches, and price 6*s.* 6*d.* to 8*s.* per yard. It is now supplied by the agency of Messrs. Smiths and Son, 237, Southwark. What I have designated as my No. 1, is their No. 8, 2 is their 5, 3 is their 3, and 4 is their 4.

§ 8. *Making ready a Forme.**—A careful pressman will take care, before he lays a forme on the press, to wipe the press-stone perfectly clean; for if any (however small) hard particle be on it, the letter that lies on that matter will, with pulling, quickly rise,

* Much of this section equally applies to any kind or construction of press —I must leave to the reader the discrimination of what exclusively relates to either one press or the other.

and not only make a stronger impression than the rest of the forme, but in all probability cause a dent in the platten, and bear off the adjacent letters. He will also carefully examine whether the back-side of the forme be clean, before he attend to the register, or otherwise make ready his forme. The forme should be laid under the centre of the platten.

He next lays the tympans down upon the forme, and places the blankets; then putting in the inner tympan, he fastens it with the hooks and button for that purpose, which serve to keep it from springing upwards. He afterwards folds a sheet of the paper he is about to work, in quarto, and lays the short crease over the middle of the grooves of the short cross, if it lie in the middle of the forme; for in twelves it does not, and then he folds the paper accordingly, the long crease of it upon the middle of the long cross. Having wetted his tympan, which is done in different degrees for close, heavy works, but little or none for very light, open works, he turns it down upon the paper, and running in the carriage, pulls that sheet, which, with the wet tympan and the force of the pull causes it to stick; and turning up the tympan again, he examines if the sheet be laid even; if it has not been laid even on the forme, it is better to re-lay it, and pull it again; for it is of considerable importance that it should be put on perfectly even. This sheet is called the tympan-sheet, and is placed there as a standing mark to lay all the other sheets exactly even upon, while he works the white-paper.

Having laid on the tympan-sheet, he chooses his points; for large paper, short-shanked points, and for small paper, long-shanked points, and others in proportion to the intermediate sizes of paper; for his points ought to be so placed that they may prick the point-holes within the grasp of the hollow between his right-hand thumb and fore-finger; that, when he works the reiteration, he may the better manage and point the sheet when laying it on the tympan.

Nor will he place his points too near the edge of the paper; because, in working the reiteration, he would be forced to carry his furthermost point-hole the further from him, which in a long number is a loss of time: the less distance, also, there is between the off and near point-hole, the more time is saved; because he must draw his body so much the further back, to place that hole

on its point; he, therefore, places the near point further into the paper than the off-point, if it be folio, quarto, or octavo; but to twelves, equally distant from both edges of the paper.

By placing the points unequally from the edges of the paper, as in folios, quartos, and octavos, as aforesaid, he also secures himself the more from the danger of a turned heap when he works the reiteration; because, without very much altering the quoins, he will not be able to make register, and the accident will be at once detected; and pressmen, especially if they work upon the same sort of work, seldom or never remove the quoins on the further side of the carriage, nor on the right-hand end of the carriage, but let them lie as gauges for the next forme; for by thrusting the chase close against these quoins, the register is almost, if not quite, made; the compositor having been supposed to have chosen chases exactly of an equal size, and made equal whites between the crosses, &c.; this is one great advantage of cast-iron chases, from the same pattern.

Having chosen his points, he places them so that they may both stand in a straight line, parallel with the top and bottom sides of the tympan. He then lays the tympan down upon the forme, holding the frisket-end of it in his left hand, about an inch or an inch and a half above the face of the letter, and sinks his body downwards till he can see between the forme and tympan; and with the ball of the middle finger of his right hand presses gently upon the tympan over the point-ends of each point successively, to see if the points fall in or near the middle of the grooves in the short cross. If they fall exactly in the middle of those grooves, the forme lies exactly between the middle of both the ends; if they fall not exactly in the middle, he moves the forme between the ends of the carriage till they do, and then quoins up both ends of the chase.

Under this phrase, of *making ready the forme,* are comprehended many other operations: for, 1, The frisket must be covered with brown or stiff paper, by means of paste, and cut; to perform which the pressman fits the match-joints of the frisket into the match-joints of the tympan, and pins them in with the frisket-pins, or screws them up, if working on centres; and having beaten the forme, turns down the frisket and tympan on the forme, and pulls on the covered frisket. Then he runs out the carriage, takes up

the tympan and frisket together off the forme, and lays them on the gallows; then draws the frisket-pins, or pivots, out again, and takes off the frisket, and laying it flat on his bank, with the point of a sharp knife cuts through the frisket about all the sides of each page, allowing to each he thus cuts out of the frisket about a nonpareil margin on all the sides of the cut pages; then he pins or screws his frisket again on the tympan, as before.

2. He then sees that the forme be properly locked up.

3. That no letters or spaces lie in the white lines of the forme; which may happen if the compositor have made any corrections since the forme was laid on the press.

4. If any wood-cuts be in the forme, that they be exactly letter high; if not, for it seldom happens that they are, he must make them so. If they are too low, he underlays them; but examines first how much they are too low, by laying one or more cards or scaleboards upon the face of the woodcut, and, by means of a straight edge, or feeling with the fingers of his right hand if the intended underlay be exactly even with the face of the letter. If it be not, he tries thicker or thinner underlays till he has made it on a level.

Having evened his underlay, he unlocks the quarter it is in, takes the wood-cut out of the forme, and fitting a scaleboard, or card, or what he judges requisite, to the bottom of it, places it thus raised in the forme. Not trusting to his judgment altogether for the thickness of the underlay, he locks up the forme again, pulls a waste sheet upon it to sink it as low as it will go, and then observes if it be a proper height; thus adding or taking away till it produces a clear and perfect impression. If the wood-cut be too high, it must be planed lower at the bottom; or he may introduce a few sheets of paper in the tympans, and cut away the part that bears on the wood-cut, until he gets it even.

5. If a white page or pages happen in a forme, and he use a new-made frisket, he does not cut out that page; but if he work with an old frisket, and that page is already cut out, he pastes on a piece of paper to cover the white page in the forme, that it may not black. Those pages adjacent to a white page will come off harder than any other in the forme; to prevent which, the pressman fits a bearer on the frisket, Bearers are generally made of great-primer or double-pica reglets, which, when laid on the forme,

will be about a thin lead higher than the letter. They are cut about an inch long, and then pasted, and laid on the furniture of the forme with the pasted side upwards; the frisket and tympan are then laid down upon the forme, and an impression made, which will cause the bearer to stick on the frisket. Cork bearers are frequently used, which, from their elasticity, in many cases are very useful, or paper bearers, by rolling up and pasting pieces of wrapper.

6. He examines whether the frisket bites; that is, whether it keep off the impression from any part of the pages; if it does, he cuts away so much, and about a nonpareil more, off the frisket where this happens.

7. He examines if the beards of the letter print at the feet of the pages; if they do, he considers whether the too short or too far running in of the carriage causes it; or whether it be only the beard of a short page that comes off; if the last be the cause, he remedies it by a bearer.

8. If the carriage be run in short, and the feet of the pages stand towards the platten, the hind-side of the platten will press strong upon the feet of those pages; and if the carriage be run in too far, the feet of the pages that stand towards the hinder rail of the tympan will most feel the force of the platten; and according to a greater or less proportion of that force, and to the softness or yielding of the paper, tympan, and blankets, and all other springs in the press, the feet of the pages and beard of the letter will more or less print hard. In this case he runs the carriage under the platten, till the further edge of the platten just covers the feet of those pages, and with a piece of chalk makes a stroke over the plank of the near side of the carriage behind, and the upper side of the rail of the ribs; then he runs in the carriage again, till the foreside of the platten just covers the feet of the pages next the hind rail of the tympan, and makes another mark with chalk on the rail of the ribs, to join with the mark he first made on the plank of the carriage. He now runs out the carriage, and lays the tympan down on the forme; then runs in the carriage again till he joins the mark or line he made first on the plank and rail of the ribs, and makes a mark with chalk on the further rail of the tympan to range with the fore-side of the platten. This mark on the tympan shows him how far he must run the carriage in

against the fore-edge of the platten, for the first pull.* Then he runs in the carriage further, till he joins the same mark, or line, on the plank, to the second mark he made on the rail of the ribs, and makes another on the further rail of the tympan to range with the fore-side of the platten, for the mark to which he is to run the carriage in against the fore-edge of the platten, for his second pull.

9. †He examines if the catch of the bar will hold it when the spindle makes a small spring, viz. when the bar flies but a little way back from the pressure of the forme; if it will not, he knocks up the catch higher, and then turns the screw on the shank, and consequently the catch close and firm against the cheek of the press. But if the catch stand too high, so that it will not without a great spring (viz. when the bar is pulled hard from the further cheek) fly up; he then knocks upon the top of it, to sink it lower; and, when it is well fitted, screws it up again as before. If the catch stand too low, it will not hold the bar, which will come down when he is at work; for if, as it often happens, he lets the bar fly back harder than ordinary, or if it slip out of his hand, it will knock hard against the cheek, and spring back again. If the catch of the bar stand but a little too high, the violence of the bar's flying back to make it stick on the catch, will soon loosen the square of the bar in the eye of the spindle, and indeed subject the whole press to an unstable condition.

10. ‡He considers whether the catch of the frisket stands either too forward or too backward. It may stand too forward, though, when it is leisurely turned up, it stays the frisket; because, when the pressman is proceeding in his work, though he generally throws the frisket quick up, with an accustomed, and, as he intends, equal strength; yet, if his guess at strength in throwing it up varies, and it comes, though but a little, harder up, the catch will make the frisket return; and though, as it sometimes happens, a solid wall serves to do the office of a stay for the frisket, yet with a little too hard throwing it up, the frisket itself will so shake and tremble from end to end, that before it recovers rest, its own reverberatory motion will cause it to fall down again.

* This, and similar passages, the reader will at once perceive to apply only to the two-pull presses.

† This section applies wholly to the joiner's press.

‡ This section applies to every press.

If the catch stand too backward, then, after he has given the frisket a touch to bring it down, it will be too long before it will follow, and retard the progress of the work, and not unfrequently cause the sheet to slip out of its proper place; he therefore places the catch so that the frisket may stand a little beyond a perpendicular backwards, that with a near-guessed strength in the tossing it up it may just stand, and not come back; for then with a small touch behind, it will again quickly come down upon the tympan.

11. He fits the gallows so that the tympan may stand as much towards an upright as he can; because it is the sooner let down upon the forme and lifted up again. But yet he will not place it so upright as to prevent the white sheets of paper from lying secure on the tympan; and for reiteration sheets, their lying upon the points secures them.

12. He considers the situation of the foot-step, and he places it so as may best suit with his own stature; for a tall man may allow the foot-step to stand further off and lower than a short one, because his legs reach further under the carriage, and he can tread hard to add strength to his pull, when a short man must strain his legs to feel the foot-step, and consequently diminish the force of his pull.

13. Few pressmen will set the range of the paper bank to stand at right angles with the plank of the carriage; but they draw the further end of the paper bank so as that the near side may make an angle of about seventy-five degrees, more or less, with the near side of the carriage. The reason is, if the near side of the paper bank stand at right angles with the near side of the carriage, he must carry his hand further when he lays or casts the sheets, which would occasion delay: besides, his companion has a nearer access to it, to look over the heap, which he frequently ought to do, to see the colour of the work.

14. The pressman brings his heap, and sets it on the horse, on the near end of the paper bank, as near the tympan as he can, yet not to touch it, and places an end of the heap towards him. He then takes the uppermost, or outside sheet, and lays it on the bank; and taking three, or four, or five quires off his heap, he shakes them at each end, to loosen the sheets, that with pressing stick close together; and not finding them loose enough, he shakes

them long-ways and side-ways, to and fro, till he finds he has sufficiently loosened or hollowed the heap. Then with the nail of his right-hand thumb, he draws or slides forward the upper sheet, and two or three more commonly follow gradually with it, over the hither edge of the heap, to prepare those sheets ready for laying on the tympan.

§ 9. *Rubbing out Ink.**—Before the pressman goes to work, he rubs out his ink. If it has lain long on the ink-block, since it was last rubbed out, the surface of it is generally dried and hardened into a film or skin, for which reason he carefully takes this film quite off, before he disturbs the body of the ink; for should any, though ever so little of it, mingle with the ink, when the ball happens to take up the little particles of film, and delivers them again upon the face of the letter, they produce picks, print black, and deface the work; and if they get between the face of two or more letters, or the hollows of them, they will obliterate all they cover; and if they be pulled upon, and the pressman not careful to overlook his work, they may run through the whole heap. Having carefully skinned off the film, he brings forward a small quantity of ink near the edge of the block, which he rubs well with the brayer. Care should be observed not to bray out much at a time, for if this be done it will be impossible to preserve any degree of uniformity in taking ink.

§ 10. *Of Beating, or Rolling.*—The application of the ink is so important a part of a pressman's business, that, if not properly done, every other operation becomes almost useless. A careful beater, or roller, will never be found to take much ink at one time; but keep brayed out in the front of the ink block, or stage, a small quantity, that he may be certain of never receiving more than is necessary. The great art is, to preserve a uniformity of colour, which is easily performed by paying a proper attention to the taking of ink; this done regularly, and the form well gone over, the man may then be said to have done his duty.

All pressmen do not beat alike, but the method generally followed by good workmen is, the moment the tympans are lifted up, to lay the balls on the left-hand near corner of the forme, that he may the more readily carry them to the near right-hand corner;

* These directions must be applied according to circumstances of using balls or rollers.

while his companion is casting the sheet on the bank; if this opportunity be lost, it occasions delay, and in all probability leaves that corner untouched by the ball, and makes what is technically termed *a friar*.

In beating over the forme the elbows should be kept rather inward, and the ball-stock handle inclining outward, in order that the balls may be perfectly upright; it will also enable him to go over the corner before mentioned with greater ease and certainty. This plan, if strictly followed, is unquestionably the most expeditious, as well as the least liable to defects, if common attention be observed by the beater. He begins, as already observed, at the right-hand near corner, and goes up that side of the forme and returns, and leaves off at the left-hand near corner, taking care to make the forme feel the force of the balls, by beating hard and close. In the operation of beating, the balls should be constantly turning round in the hands, as it keeps them in their proper shape, and thereby renders them more safe and pleasant to work with.

The balls should not go too far over the forme, for they are liable to gather dust, and consequently throw picks on the forme, which are not easily got rid of. These picks, and every other defect, it is the business of the beater to look carefully after, and to endeavour to mend and prevent. His companion can also, when taking off the sheets, give a slight glance over them; but the uniformity of the work will depend principally upon the beater. He will point out to the puller any defects in laying the sheets on the tympan, or if he neglects to pull down the work with the force it requires.

Having thus gone twice upwards and downwards with the balls, beating close and strong, the forme may then be considered sufficiently beaten; but if he beat the first sheet of a fresh forme, or after a forme has been lately washed and consequently damp, or makes a proof, he goes three, four, or five times upwards and downwards, for the letter will not take the ink without several beatings.

The application of the rollers will be guided by similar principles. Having, either by turning the iron cylinder, working against the edge of the ink-trough, or by passing the brayer conveying the ink along the elevated part of the ink-table, obtained a line of ink, the workman transfers so much as he deems necessary

to the roller; and then, by repeatedly working it on the table, distributes the ink perfectly equal over the whole surface. At the moment the puller throws up the tympans, he moves the roller from off the table to the forme; and passing it from the near to the off side, and back again, replaces it on the table, and either repeats the operation of taking ink, or pays the necessary attention, at intervals, to the work on the bank.

§ 11. *Of Pulling.*—The puller lays on sheets, lays down the frisket and tympans, runs in and out the carriage, takes up the tympans and frisket, takes off the sheet, and lays it on the heap. All these operations are comprehended in the term pulling; and as in pulling, so in beating or rolling; for though the companion brays out the ink and distributes it, takes it from the cylinder, &c. and distributes it on the rollers, peruses the heap, &c. yet these operations are included in the general terms of beating or rolling.

To take a sheet off the heap, the puller places his body almost straight before the near side of the tympan; but nimbly twists the upper part of his body a little backwards towards the heap, the better to see that he takes but one sheet off, which he loosens from the rest of the heap by drawing the back of the nail of his right thumb quickly over the bottom part of the heap (but in the reiteration, care should be observed to draw the thumb on the margin, or between the gutters, that the sheet may not smear or set off) and, receiving the near end of the sheet with his left-hand fingers and thumb, catches it with his right hand about two inches within the further edge of the sheet, near the upper corner, and about the length of his thumb below the near edge of the sheet, and brings it swiftly to the tympan, and at the same time twists his body again before the tympan, only moving his right foot a little from its first station forwards under the coffin-plank, or the table; and as the sheet is coming to the tympan (suppose it to be white-paper) he nimbly disposes the fingers of his right hand under the further edge of the sheet near the upper corner; and having the sheet thus in both his hands, lays the further side and two extreme corners of the sheet down even upon the further side and extreme further corners of the tympan sheet; but he is careful that the upper corner of the sheet be first laid even upon the upper corner of the tympan sheet, that he may the sooner disengage his

right hand. If, however, by a quick glance of his eye, he perceives the sides of the sheet lie uneven on the tympan sheet, with his left hand at the bottom corner of the sheet, he either draws it backwards, or pulls it forwards, as the sheet may lie higher or lower on the near corners of the tympan sheet, while his right hand, being disengaged, is removed to the back of the ear of the frisket, and with it gives it a light touch to bring it down upon the tympan, laying, at the same moment the tympan on the forme. He then, with his left hand, grasps the rounce, and with a moderate strength quickly gives its winch about one turn round;* but to regulate his running-in, he first makes a mark, as before observed, on the further rail of the tympan, to which mark he runs the carriage in, till he brings the mark in a range with the fore edge of the platten; and as it is running in, skips his hand to within an inch or two of the end of the bar, and then gently leans his body back, that his arm, as he pulls the bar towards him, may keep a straight posture; because in a pull it has then the greatest strength. He now puts his right foot upon the footstep, while his left hand holds fast by the rounce; as well to rest on the footstep and rounce, as to enable him to make a stronger pull; which will prove longer or shorter according to the strength put to it. Then disengaging his right hand again from the handle of the bar, he slips it to the bow of the bar, before the handle rebounds quite back to the cheek of the press; for should the bar by its forcible spring knock hard against the cheek of the press, it might not only shake some of its parts out of order, but subject the whole machine to injury; besides, the further the bar flies back, the more he is retarded in recovering it again. But yet he must let the bar fly so far back, as that the platten may clear the tympan; lest, when he runs in for his second pull, the face of the platten rub upon the tympan, and force the sheet upon the face of the letter, which slurs or doubles the impression, and destroys the sheet.

Having made the first pull, and the rounce still in his left hand, he turns it round again, till the carriage runs in so far as that the second mark of the rail of the tympan comes in a range with the further edge of the platten, as before, and then pulls his second pull, as he did his first, and slips his right hand again off the

* The description of this complicated motion, applies wholly to the two-pull presses.

handle of the bar to the bow, guiding the bar expeditiously to its catch; and just as he has pulled his second pull, he gives a quick and strong pressure upon the rounce, to turn it back, and run the carriage out again: as soon as he has given this pressure, he disengages his left hand from the rounce, and claps the fingers of it towards the bottom of the tympan, to assist the right hand in lifting it up, and also to be ready to catch the bottom of the sheet when the frisket rises, which he conveys quick and gently to the catch; and while it is going up, he slips the thumb of his left hand under the near lower corner of the sheet, which, with the assistance of his two fore-fingers, he raises, and by so doing allows the right hand also to grasp it at the top, in the same manner, which lifts the sheet carefully and expeditiously off the points, and nimbly twisting about his body towards the paper bank, carries the sheet over the heap of white-paper to the bank, and lays it down upon a waste sheet or wrapper, put there for that purpose; but while it is coming over the white-paper heap, though he has the sheet between both his fore-fingers and thumbs, yet he holds it so loosely, that it may move between them as on two centres, as his body twists about from the side of the tympan towards the side of the paper bank.

Thus, both the pressman's hands at the same time are alternately engaged in different operations; for while his right hand is employed in one action, his left is busy about another; and these exercises are so suddenly varied, that they seem to slide into one another's position, beginning when the former is but half performed.

*Having thus pulled a sheet, and laid it down, he turns his body towards the tympan again, and, as he is turning, gives the next sheet on the white-paper heap a touch with the back of the nail of his right thumb, as before, to draw it a little over the hither edge of the heap, and lays it on the tympans, &c. as he did the first; and so successively every sheet, till the whole heap of white-paper be worked off.

As he comes to a token sheet, he undoubles it, and smooths out the crease with the back of the nails of his right hand, that the face of the letter may print upon smooth paper. And being

* The description now becomes general for all presses.

printed off, he folds it again, as before, for a token sheet when he works the re-iteration.

Having worked off the white-paper of twelves, he places his right hand under the heap, and his left hand supporting the end near him, turns it over on the horse, with the printed side downwards: if octavo, he places his left hand under the heap, supporting the outside near end with his right hand, and turns it one end over the other; all turning of the paper for re-iteration is regulated by this principle, and called by the pressmen *twelves-ways*, or *octavo-ways*. In performing this operation, he takes from the heap so much at once as he can well govern, without disordering the evenness of the sides of the paper, viz. a token or more, and lays that upon the horse; then takes another lift, and so successively, till he has turned the whole.

Having turned the heap, he proceeds to make register, which he does by laying one of the sheets just printed on one side, upon the tympan sheet, for a register sheet, and a waste sheet over that to keep it clean from any filth the face of the letter may have imprinted upon it, and pulls these two sheets. Then he runs out the carriage or table, lifts up the tympan, and takes off the two sheets, laying the waste sheet by; but turns the other side of the register sheet, to try how the impression of the sides of all the pages agrees, and lies upon the impression in the first-pulled side. If he finds they agree perfectly well, register is made. But if the impression of the last-pulled side of the register sheet stand not even with the impression of the first-pulled side, either the whole length of the sheet or part, he observes how much it stands uneven; then he loosens the quoin or quoins on the further side of the coffin, and removes them backwards till they stand the proper distance off the sides of their respective corners; then knocks up one or both the opposite quoins, till he has removed the chase, and in consequence has forced the opened quoin or quoins close against their corners. Or if the impression of the last-pulled side stand within the impression of the first-pulled side, he observes how much also, and loosening the hither quoin or quoins, and knocking up the opposite as before, makes register for the sides of the sheet.

He next observes how the register of the head and foot agree; and if he find they agree on both sides the short cross, he has good

register, supposing the compositor to have performed his office, by making all his pages of an equal length, &c.

If the impression of the last-pulled sheet lie without the impression of the first-pulled sheet, towards the upper or lower end of the tympan, he opens the quoins at the respective end, and knocks up the opposite till he has made register; to try which, he pulls another clean register sheet as before, and if he find register agree on all sides of the forme, the task is performed; if not, he alters it till it does.

But it sometimes happens that the compositor has not made the white exactly equal between all the sides of the crosses; in this case, altering the quoins will not make good register; the pressman therefore observes which side has too much or too little white, and, unlocking the forme, takes out or puts in such a number of scale-boards as he thinks will make good register, which he tries by pulling a sheet, and if it be necessary, alters it again, till he has pulled a sheet with good register.

Having made register, he proceeds to work it off; but he somewhat varies his posture in laying on the sheet; for, as before, when he worked white-paper, he caught the sheet by the upper further corner with his right hand, he now, having taken up the sheet, catches it as near the further side of the further point hole as he can, with the ball of his right-hand thumb above the sheet, and the ball of his fore finger under the sheet, the readier to lay the point hole over its respective point; which having done, he slips his body a little backwards, and both his hands with it, his right hand towards the near point hole, with the back of the nails of his fingers to draw or stroke it over the point; and the fingers of his left hand, as they come from the further corner, nimbly slipping along the bottom edge of the sheet, till they come to the hither corner; and then with his fore-finger and thumb lays hold of it, in order to guide the point hole on that point also; then pulls that sheet, as before, as he did the white-paper, and so successively all the rest of the reiteration. The token sheets, as he meets with them, he does not fold down again, as he did the white-paper.

§ 12. *The Lie-Trough.*—The forme being worked off, it becomes the pressman's duty to wash it clean and free from every particle of ink, not only for the cleanly working and well standing

of the letter in the subsequent composing, but to save his own time in making ready when the same letter gets to press again; for if a pressman is at all remiss in this duty, either after working his formes, or pulling proofs, he will be at last obliged to do it, and wait the drying of the forme, before he can go on with his work in a fit and proper manner. Many an hour is lost from a pressman not bestowing a minute or two in thoroughly cleansing and rinsing his forme.

For this purpose, every printing office is provided with a lie-trough, suspended on a cross frame, and swinging by iron ears fixed something out of the precise centre, so as the gravity of the trough will cause it to fall in a slanting position.

This trough is lined with lead; the top front edge being guarded from the pitching of the formes by a plate of iron; and a moveable board is placed at the bottom upon which to rest the forme. The forme having been placed in a slanting position, on the further side of the bottom board, so as to cause the trough to swing over to the opposite side from which he stands, he takes hold of the rim of the chase by the key, or instrument for that purpose, and laying it gently down, sluices, by means of swinging the trough on its pivots, the *lie* (of which a sufficient quantity is always kept in the trough) two or three times to and fro, then taking the *lie-brush*, he well applies it to the whole forme, type, furniture and chase; and raising it to drain, he lifts the forme out of the trough into the sink, and then with clean water, rinses off the lie, and leaves the forme, in the appropriated place, to drain. With the completion of this process the pressman's responsibility for his forme ceases.

The *lie* is made of the strongest American pearl-ash. A large

earthen jar is usually chosen for the purpose. The proportion is one pound of ash to a gallon of soft water; it should be stirred with a large stick till dissolved; the larger quantities in which it is made, and the longer it stands, the stronger it becomes. The jar should have a cover fixed on the head, with lock and key.

The lie-brush is made very large: the hairs close, fine, and long, in order not to injure the type, while sufficient force is applied to search every interstice of the letter, down to the spaces and quadrats, where the ink can have insinuated itself.

§ 13. *Of Wetting Paper.*—Paper is wetted in a trough full of clean water. The pressman places the dry heap on his left hand, and a paper-board with its breadth before him, laying first a wrapper or a waste sheet of paper on the paper-board, that it may not soil the first sheet of the heap. Then he takes up the first token, and lays it with the backs of the quires towards his right hand, that he may the more readily catch at the back of each quire with that hand; he lays that token across the rest of the heap, that he may the more easily know when he comes to the end of it.

He takes a quire, by the centre of the back, in his right hand, and the edge of it in his left, and lays it down upon the waste sheet, opens it, and lays on it a few sheets.

Having laid down his dry laying, he takes the remainder of the quire off the dry heap, with the back of it in his right hand, and the edge of it in his left, as before, and closing his hands a little, that the quire may bend rather downwards between his hands, he dips the back of the quire into the left-hand side of the trough; and discharging his left hand of the quire, draws it through the water with his right; but as the quire comes out, he quickly catches the edge of it again in his left hand, and brings it to the heap; and by lifting up his left hand, bears the under side of the quire off the dry paper, laid down before, lest the dry sheet should stick to the wet before he has placed the quire in an even position, and so perhaps wrinkle a sheet or two, or else put a dry sheet or two out of their even position. But this drawing the quire through the water, he performs either quick or slow; if the paper be weak and spongy, he performs it quickly; if strong and stubborn, slowly. To place this quire in an even position, he lays the back of it exactly upon the open crease of the former, and then lets the

side of the quire in his left hand fall flat down upon the heap, and discharging his right hand, brings it to the edge of the quire; and with the assistance of his left thumb, still in its first position, opens or divides either a third or half of the whole quire according to the quality of the paper; then spreading the fingers of his right hand as much as he can through the length of the quire, turns over his opened division of it upon his right-hand side of the heap.

Drawing, and plate papers, being occasionally used by the letter-press printer, it is proper to point out that a different process must be used in the wetting. These papers are usually sent in from the stationers quite flat; that is, not folded into quires or half quires, but divided into quires by little slips of paper. The best method of wetting these papers is to use a brush, such as is called a banister brush; and instead of dipping the paper into the trough, lay it down by the side, and dipping the brush into the trough, give it a gentle shake to take off the superfluous water: then, by a quick motion, carry it to the heap, taking the middle first, and passing it over the whole surface to give an equal degree of moisture to all parts: and continue to follow up the process upon the same principles as in wetting paper after the ordinary mode, as before described. The drawing-paper being very hard-sized in the making, will require the brush, and much water, three, four, or five times a quire; while plate-paper will take as little water as it is possible to give it, so as to cover it all over; and twice a quire will often be too much. This same mode must also be adopted in wetting paper of extraordinary large dimensions.

Having wet his first token, he doubles down a corner of the upper sheet of it on his right hand, so that the further corner may lie a little towards the left hand of the crease in the middle of the heap, and that the other corner may hang out on the near side of the heap, about an inch and a half; this sheet is called the token sheet, as being a mark for the pressman, when he is at work, to know how many tokens of that heap are worked off.

Having wet the whole heap, he lays a wrapper or waste sheet of paper upon it, that the paper-board may not soil the last sheet of the heap; then, three or four times, takes up as much water as he can in the hollow of his hand, and throws it over the waste sheet, that it may moisten and soak downwards into the unwet part of

the last division of the quire; after which he places the label which the warehouse-man must always furnish for each bundle, and upon which is written, in legible characters, the title of the work, the number to be printed, and the date of wetting, in the heap, one half hanging out, so as to be easily read.

The paper being thus wetted, he takes up the whole heap upon the paper-board, and sets it by in a part of the room, appropriated for that purpose, and lays another board upon it; and upon the middle of the board sets about half a hundred weight, and lets it stand by to press, commonly till next morning; for pressmen generally wet their paper after they have left work at night. All wetted paper would be better if it were separated and turned in the course of the following morning, and pressed again for seven or eight hours.

But the wetting of paper must, in all cases, depend entirely upon its fabric: and since the printer has seldom, when employed by a bookseller, the choice of the paper, it will require all his skill and patience to adopt his labours to the material upon which he is to work. The paper for fine work must increase in firmness of texture, as the ink is increased in fineness and tenacity. To attempt doing fine work upon common paper is but throwing away time and expense. A paper to take the best ink must be made entirely of linen rag, and not bleached by any chemical or artificial means. The fine Kentish hand-made paper, fabricated a sufficient time to get properly hardened, and well and equally saturated with size so as not to imbibe more water in one part of the dip than in another, nor resisting the water like a duck's back, is what I have found most suitable for fine printing. The paper having been wetted with the greatest care as to equality of water, should be pressed for twelve hours, and then carefully turned by each two or three sheets so as no lift be relaid in the same position with respect to the adjoining lift; at the same time every fold and wrinkle must be carefully rubbed out by the action of the hand, so that nothing but a flat and even surface shall remain: the heap should then be pressed for another twelve hours in a screw press; and it will be in good order for working.

A truly scientific method of wetting paper has been practised by Mr. John Oldham, the director of the printing department of the Bank of Ireland. The difference in quality of the material on

which a book-printer has to work, leads me to doubt the practicability of applying such a mode to general purposes; yet, as it may perhaps afford some useful hint to a philosophic printer, I shall give the best account I have been able to collect of his apparatus and process.

The apparatus consists of a large cast-iron box, the lid of which is made to shut with an air-tight joint. A reservoir of water beneath the box, has communication with it by a perpendicular pipe which can be intercepted at pleasure by means of a stop-cock. The paper to be wetted is evenly piled in rail-work wooden boxes, which are placed so that the paper shall stand upon its edge in the cast-iron vessel, from which the air is drawn by means of an air-pump: and the stop-cock being then opened, the atmospheric pressure upon the surface of the reservoir of water causes a portion of it to rise through the pipe into the box exhausted of air, and to instantly infuse itself minutely and equally into the paper. The air is now admitted by opening a valve, and its pressure forces the water into the paper, which is then taken out of the vessel, lying as even in the rail-work, one sheet upon another as it was first placed when dry. The superfluous moisture is next to be expressed by means either of a vertical screw and lever, or revolving cylinders properly adjusted (with great weights and levers to maintain the pressure), so as to admit any quantity of paper, little or much, between them. Thus, in a few minutes, by this process, as much paper can be wetted and made ready for working as the iron vessel will contain.

This method of damping appears to me likely to answer every purpose for peculiarly fine, hard-sized, unfolded paper: but I should never venture any expense or trouble in the experiment for the sad stuff we are obliged to manage and use as paper. "Once a quire, and quick through the trough," is often the word of command to wetters of the tender-made article, as it is put into their hands. I should expect, if a vessel were charged with reams of this sort of paper, to find it decomposed, and the pulp floating in a liquid made milk-white by the gypsum and bleach.

I must be allowed, before closing this article, to pay a tribute of respect to the talent manifested by this brother printer in the great cause of humanity, by the perfection to which he has brought the mode of forming and printing a Bank-note, which he has rendered

so difficult of imitation that no instance of the entire forgery of their bills* has occurred since he has had the direction of this department of the Bank of Ireland. In the investigation by the Society of Arts, set on foot for the purpose of ascertaining the best mode of preventing forgeries of Bank of England notes, the specimen of the Bank of Ireland was held prominently forward as a sample, and a circumstance calculated to reflect most severely, by contrast, upon the conduct of the directors of one of these two great national establishments.†

§ 14. *Making of Pelt, or Skin Balls.*—The skins of sheep, or pelts, in the state immediately after the hair has been taken off by the lime process, are used for this purpose, and such are chosen as have a strong grain, and the grease well worked out of them. They are purchased either wet or dry; if dry, they are put to soak in chamber-lie. One skin generally makes two proper-sized balls. When the skin has soaked sufficiently, which will require about fourteen or fifteen hours, it is taken out of the lie, and *curried;* that is, by putting the skin round the currying iron, or any upright post, taking hold of each end of it, and drawing it with as much force as possible, backwards and forwards, against the post, which discharges a good deal of the water and lime, and renders it more pliable; the skin is then cut exactly in half and trodden on, until not the smallest drop of water is discoverable, or until it sticks to the foot in treading. The skin is then laid on a wetting board, or a vacant press stone, and stretched, by rubbing the ball-stock on it, as much as possible. The pressman then places a lining (which is a worn-out skin, and which has been previously soaked, but not trodden) on the skin, with some refuse ink to make them adhere, and nails them with one nail to the ball-stock; he then proceeds to lay the different cardings of the wool one upon the other, crossways, till he has sufficient for the ball; he then takes it up by the bottom corners, and grasps it into a circular form, with which he fills the ball-stock, then brings the skin opposite the part already nailed, and makes that also fast with another

* In 1821, two criminals were executed at Monaghan, for altering the *sum* of an Irish Bank-note, but which is now rendered, perhaps, impossible by the use of thinner paper, which the apparatus for wetting, here described, enables Mr. Oldham to use.

† See Trans. Soc. Arts, vol. xxxviii, 1819.

nail. He then puts two nails immediately opposite each other between the fastenings already made, and proceeds to put the skin in plaits, about an inch wide; through each plait a nail is driven; the superfluous skin should then be cut off, within half an inch of the nails. Balls are well knocked up, when the wool is so placed as to form a full even face, that every part of the skin may bear upon the letter; not rising in hillocks, or falling into dales; not having too much wool in them, for that will render them soon hard and uneasy for the pressman to work with; or too little, for that will make the skin, as the wool settles with working, soon flap, and wrap over into wrinkles, so that he cannot so well distribute the ink on his balls.

Having knocked up the balls, he dips them into the lie, and immediately scrapes them with the ball knife, in order to make them perfectly clean; he then procures a clean sheet of stout paper, and puts it on the ball, and continues rubbing and patting it till the ball is perfectly dry, which is considered to be in that state when it will readily take the ink on every part of it. Having thus dried the balls, he proceeds to take ink; and if he finds that scarcely any of the skin is black, he is sure it is not sufficiently dry; he then returns again to drying it with paper, or burns a piece of waste paper, and waves his ball to and fro over the flame of it, but so quick and cautiously that he neither scorches the leather nor dries it too much; in winter, when a fire is at hand, he dries it gently by the fire. If the balls are greasy, they should be frequently rubbed up with the pelt blankets, and well scraped; and dried, as before, with paper.

The invention of a composition for coating the face of canvas balls and wood cylinders, has superseded the necessity of the filthy, troublesome, uncertain process of forming and keeping in order the balls above described. A full description of the composition balls and rollers, will be given in a subsequent chapter.

Printing Red, or other Colours, together with Black.

First, by Underlaying: When red and black are to be printed on the same sheet, the forme is made ready in the usual way, and a line traced all round the outside of the chace to shew the situation in which the forme must be replaced after it has been taken off the press.

The pressman then pulls a sheet in order to get those words or lines marked, which are to be worked red; while this is doing, he washes the forme thoroughly, as the least dirt remaining on it will destroy the beauty of that colour. The forme is then laid, with its face downwards, on a letter-board covered with a press blanket. Those words marked to be red are then forced down (which the soft and spongy nature of the blanket readily admits of), and nonpareil reglets nicely fitted into the vacancies, which raise the red lines and words all of an equal distance from the other matter. A sheet of paper is then pasted on the forme, which keeps the underlays in their proper places. The forme is again laid on the press, observing the utmost care in placing it, agreeable to the marks before made on the stone. It must then be made perfectly fast to the corner irons, as it is highly important that it remain firm and immoveable during its stay on the press. The frisket (which is covered with parchment), is then put on, the forme beat over with red ink, and an impression made on the frisket. The words so impressed are then cut out with a sharp-pointed penknife, with so much nicety as not to admit the smallest soil on the paper from the other matter.

The red being finished, and the forme washed, the compositor unlocks it (which is best done on the imposing stone, as the pressman can easily replace it, by the marks made on the press), and draws out the red words, filling up the space with quadrats. When this is done, the pressman cuts out the frisket for the black.

An extra pair of points are used to prevent the black from falling on the red, which is termed *riding*.

When a very extensive number is to be printed, as in Moore, Goldsmith, the County, and other almanacks, two formes are generally used, one for the red, and another for the black; the greatest care being taken by the compositor to have quadrat lines corresponding with every line in the black, and lead of equal thickness to cut for every rule.

There is another method of placing the underlays, which is adopted for broadsides, &c. with large letter, and with perhaps only two or three lines of red in them. The red lines are taken out on the press stone, and the underlays put in with a bodkin, upon which these lines are placed, and the frisket cut out as before mentioned.

I have lately adopted this plan, varied in a trifling degree, with much success in smaller type. Having drawn out the lines or words, I place in the vacancy m-quadrats laid down length-ways, cutting them, if necessary, to proper lengths; and filling up with quadrats. The black having been worked, then, by means of the bodkin, draw out the quadrats, and place in the words to rest on the horizontal laid m-quadrats: then lock up and work the red.

But the most effectual mode of printing in red and black from the same forme, has lately been invented by my father for printing the returns made to the House of Commons of Charitable Donations. For this purpose he has a type cast, which, from its application, he has named *rubric*, the peculiarity of which is, its being cast with a longer shank, or body, so as to stand higher to paper by the square of its own body, than other type. The work being composed in the usual manner of common type, and the proofs having been read and sent out, such parts are marked by underscoring with red, as are to be worked red; when ready for press, such parts are taken out, and their places filled with quadrats. Then the parts so taken out are reset in rubric; and when the black has been worked, the quadrats are withdrawn, the rubric type inserted, and then worked in red.

Pelt-balls having been once used for black, cannot be employed for any other colour; and as printing with red, &c. is but rarely performed, the balls for that purpose may be made of old parchment, well soaked, which may be done in a few minutes. These balls are made without stocks, and of a small size. For almanacks, broadsides, &c. where a large number is printed, balls are made in the usual way, or composition balls or rollers provided.

Mixing and Grinding Colours with Varnish.

Varnish is the common menstruum for all colours used in printing. Vermillion, with a small portion of lake, produces a beautiful red, which should be well ground with a muller on a marble slab, till it be perfectly smooth. If it be in the smallest degree gritty, it clogs the forme, and consequently produces a thick and imperfect impression; no pains should therefore be spared to render it perfectly smooth; it may then be made to work as clear and free from picks as black. A cheaper red, but not so brilliant, may be prepared with orange mineral, rose pink, and red lead.

The Prussian blue makes also an excellent colour, but will require a good deal of time and labour to render it perfectly smooth. It is also ground with the best varnish, but made considerably thicker by allowing a greater portion of colour with the same quantity of varnish, than the red; it will then work clear and free from picks. As this colour drys rather rapidly, the balls will require to be frequently scraped.

Other colours may be made, viz. lake and russet, which produce a deep red; verditure and indigo, for blues; orpiment; pink, yellow ochre, for yellows; verdigris and green verditure, for green, &c. All these colours should be ground with soft varnish, being in themselves dryers, or they will so choke up the forme, as to require it to be frequently washed, as well as dry and harden the balls, and soon render them useless.

The best colours for printing are those of the lightest body and brightest colour.

It will sometimes be necessary to use boiling lie, for washing the formes printed with these coloured inks.

Rules and Remedies for Pressmen.—Of Proofs.

It is the business of the pressman to pull proofs whenever they are wanted; but a very heavy, and, in my opinion, unjust tax it is upon him. In most offices of any extent, a spare press is generally placed in some part of the composing room, and called, the proof-press. The slovenly manner in which proofs are too often pulled, cannot be sufficiently reprobated. It is the duty of the corrector to notice whatever appears faulty or defective in the type; consequently, upon dirty, or almost illegible proofs, the marks will be numerous, and the trouble and loss of time to the compositor great and vexatious, and of serious consequence to the master; for a compositor, having gathered among the corrections the letter so marked, will find it much less trouble, when he has drawn out the supposed faulty letter, to give it the *coup de grâce* on the side of the stone or chace, lest it should again be the cause of similar trouble, consign it at once to the old shoe, and replace it by the one ready in his hand, than to ascertain, by a nice and critical examination, whether it is, or is not, defective, and then to return the gathered letter into his case. This is not the greatest

evil; the most attentive and careful reader will not, in such proofs, be able to discover real faults; and therefore, no proof should be received by the reader that has not been pulled perfectly clean and legible; the pressman would then be obliged to take some pains in this respect.

After a proof has been made, the forme should be well rubbed over with clean lie, for this purpose a pan of lie and a brush is kept under or near each proof press.

Of the Work.

About every three sheets a small quantity of ink should be taken,* and during the intervals in which the beater or roller is not employed in braying out or taking ink, he should be overlooking the heap in order to detect any want of uniformity in the colour; to observe if any letters, quadrats, or furniture rise; that no letters are drawn out, or battered; that the register be good, and the work free from picks: during this examination, the balls must be distributed as much as possible.

When, through carelessness, too much ink has been taken, it should be removed by laying a piece of clean waste paper on one of the balls, or on the roller, and distributing till the ink is reduced to the proper quantity.

If letters, quadrats, or furniture, rise up and black the paper, put them down with the bodkin, and lock the quarter up tighter.

If any letters are battered, the quarter they are in must be unlocked, and perfect ones put in by the compositor.

When bearers become too thin by long working, they should be replaced by thicker ones.

When the forme gets out of register, which will often happen by the starting of the quoins which secure the chase, it must be immediately put in again, as there can scarcely be a greater defect in a book than a want of uniformity in this particular.

If picks, which are produced by bits of paper, skin, or film of

* This will be subject to considerable variation from the nature of the individual work, and quality of the ink; a forme of large type will require the taking of ink every sheet; some book-work, of heavy composition, every two sheets; light formes, three or four sheets; and again, very fine work, every sheet, in order to keep the colour perfectly alike of every sheet.

ink and grease, or other filth, get into the forme, they are removed with the point of a pin or needle; but if the forme is much clogged with them, it should be well brushed over with clean lie, or taken off and washed in the lie trough: in the first case, before the pressman goes on again, it should be made perfectly dry by pulling a waste sheet or two, in order to suck up the water deposited in the cavities of the letter, in the latter it must stand some time to drain and dry before he again lays it on the press.

The puller should habituate himself to glance his eye over every sheet as he takes it off the tympan; this may be done without retarding his progress: by following this plan, he will be enabled to detect imperfections which may escape his companion.

In order to ensure uniformity in receiving ink from the block, care should be taken, when balls are used, to bray out at the edge of the block small quantities at a time. While this is doing, the balls must rest on the ball rack, with the right hand on the upper ball-stock handle.

Torn or stained sheets, met with in the course of work, are thrown out and placed under the bank; but the pressman should be particularly careful to have them supplied by others from the warehouseman. Creases and wrinkles will frequently happen in the sheets, through careless wetting of the paper; these should be carefully removed, by smoothing them out with the back of the nails of the right hand.

In twelves, and other works at two-pull presses, where the platten pinches twice upon the centre pages, mackling or doubling the impression frequently happens; the following, among many others, are the causes of, and remedies for this evil.

It happens when the face of the platten and the inner tympan are both dirty, which occasions them to stick—they should always be kept perfectly clean.

Slack or rickety tympans will also cause doubling; and leaning the body against the carriage in reaching the bar, in presses without guide cramps, or where the cramps do not act with truth.

*The nut being loose in the head will also occasion this defect; the short bolts should be screwed up as tight as possible.

*If the platten be slack, or otherwise improperly tied up, this defect will always happen; also doubling will happen from the

* These paragraphs apply wholly to the joiners' presses.

following causes, which must be remedied by the joiner and smith: viz.

*When the tenons of the head are so narrow as not to fill the mortises in the cheeks.

*The nut and garter so worn as not to admit the spindle to work close in them.

*The hose not working easy and steady in the shelves.

*The wheel on the spit not well justified, and its having too much play in the ear, which causes an unpleasant check.

The paper being rather too dry will also sometimes cause the impression to mackle.

Slurring and mackling will frequently happen when the tympans are carelessly and suddenly put on the forme: they should always be laid down easy, and the slur screw made proper use of.

Leaning against the carriage, as before mentioned, will also cause a slur.

If the platten rub against the rail of the tympan, it will inevitably cause a slur and mackle. This can easily be remedied by moving the tympan joints so as to clear the platten.

The ear of the frisket being so long as to cause it to rub against the cheek, always produces a slur: remedy—make it shorter.

Loose tympans will at all times slur the work; great care must therefore be observed in drawing them perfectly tight.

Independently of the above causes, slurring and mackling will sometimes happen from causes which baffle all art and patience to detect. It will be better in this case to tie as many cords as possible across the frisket, which will keep the sheet close to the tympan.

In the Stanhope presses it generally arises from the screw in the back plate becoming loose—the remedy is simple—screw it up again.

Before the pressman leaves his work, he covers his heap. He first turns down a sheet like a token sheet, where he leaves off, then puts a quantity of the worked off sheets on it, taking care to have the printed side upwards, that his companion, if he have any, on coming to work first in the morning, may not be deceived in taking it for the reiteration. Laying the blanket on the heap, after leaving off work, is a bad custom. If the paper be rather dry, it will be better to put wet wrappers on it. The blankets

should always be kept as dry as possible, that they may not make the inner tympan damp and slack.

The pressman's next care should be to look after his balls. They should be well rubbed with a blanket soaked with lie, if they are inclined to be hard, that they may be in proper order for the next day's work. They must be left well covered up with the blankets; but if they are already sufficiently soft, they will not require rubbing, and what is termed a dry blanket will answer the purpose, viz. one from which the water does not run. When the balls have been over-soaked, they should be left on the rack all night, with merely a piece of paper round them, as they will not bear the process of what is termed *capping*.

The pressman next observes whether his forme be clean; if so, he puts a sheet of waste paper between the tympan and frisket, and lays them down on the forme: if it be dirty, it must be rubbed over with clean lie. On his return to work in the morning, he takes care to wet the tympan, but not for very light work. If there should happen to be any pages in the forme particularly open, those parts of the tympan where they fall must not be wetted.

As the mode of reckoning press work by "tokens" and "hours," is sometimes difficult to those who have not daily practice, I shall give a table, which perhaps may save trouble. 250 is a token; each token, in ordinary work, is reckoned an hour, and it is equally correct to say, technically, that a forme is so many token, or so many hours: thus, 2,000 is 4 token, or 4 hours one side—8 hours, or 8 token perfect, and the price for this is so many token for each man; so that 1,000 in price, is 16 times the sum at which the work is paid per hour.

Sheet Perfect.	Hours.	4½*d.*		5*d.*		5½*d.*		6*d.*
		s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*
250 . .	4	1	6	1	8	1	10	2
500 . .	8	3	0	3	4	3	8	4
750 . .	12	4	6	5	0	5	6	6
1,000 . .	16	6	0	6	8	7	4	8
1,250 . .	20	7	6	8	4	9	2	10
1,500 . .	24	9	0	10	0	11	0	12
1,750 . .	28	10	6	11	8	12	10	14
2,000 . .	32	12	0	13	4	14	8	16

W. BULMER.

FINE PRINTING.

CHAPTER IV.

Of Fine Printing—Baskerville—Ritchie—Bulmer—Bensley—M'Creery—Bad Effects on other Work—Small Type—Various Notions of Fine Printing—Wood-cut Working—Obstacles to Fine-work—Mutation of Taste in the Form of Types—Monstrosities of 1824—*Requisite Materials for Fine Printing.*

IT must be gratifying to those immediately interested in the advancement of the liberal arts, and the professions connected with them, as well as to those who contemplate them with a patriotic regard, to witness the present state of British typography. Baskerville, many years ago, gave the first impulse to improvement; and it has since continued to increase through almost every part of the kingdom. As it was found very difficult to obviate some of the impediments which retarded our early improvement, the printers of the continent, who, from being less subject to the versatilities of climate, and from other circumstances, already mentioned in a former chapter, had a clearer path before them, took the lead for a considerable time in beauty of workmanship. Hence the works of several foreign printers have acquired them a distinguished celebrity throughout the learned nations at a much earlier period of the art, (see p. 301): but there is a satisfaction in reflecting that names are now to be met with among our own countrymen, as eminently celebrated in this admirable art as those of any who have been before them. By those only who have attempted to carry the art to perfection can the attendant difficulties be truly conceived: and, after the toil of years in the pursuit, how few the instances where fame has been the reward,

how still more limited those where opulence has been the harvest of the toil.

Baskerville succeeded in producing a type of superior elegance, and an ink which gave peculiar lustre to impressions from his type. The novel and unusual excellence which his works presented gave a stimulus to the exertions, and drew forth the emulation, of many of our countrymen. The first who started in this novel course was Mr. Millar Ritchie, a native of Scotland. About 1785 he carried on business in Albion Buildings, Bartholomew Close. An edition of the classics, in royal octavo, consisting of the works of Sallust, Pliny, Tacitus, Q. Curtius, Cæsar, and Livy, was the work upon which this leading attempt at superior printing was made, at the expense of the Rev. Mr. Homer, senior fellow of Magdalene College, Cambridge, who subsequently disposed of the whole impression (excepting those reserved for presents) to the bookseller, Mr. Thomas Payne. This work was also the means of first introducing Mr. Whatman's yellow wove royal paper. The next work was a quarto bible, in two volumes, upon the same paper, and two unique copies upon India paper, printed on one side only. A curious circumstance attended the printing of this bible: when it was far advanced toward a conclusion, the two Universities, and the king's printer, obtained an injunction to prevent its progress: just at this period some person was printing a bible at Dublin, under the title of "Jackson's Family Bible," (without notes). Jackson, who was the university printer at Oxford, brought an action against the Irish printer. It was solemnly argued, and the Irish court determined that a restriction upon printing authentic copies of the Scriptures was not good, and the bible was proceeded with. Upon this Mr. Ritchie also took the liberty to proceed with his bible, and no more was heard of this injunction.

Another work executed by Ritchie, with uncommon splendour and expense, was "Memoirs of the Count de Grammont," a small page, upon quarto, 1500 copies small paper, 500 on Whatman's wove royal, one copy on vellum, and three copies having this diminutive quarto page worked in the centre of a whole sheet of the royal paper.

On his first diverging from the beaten track, Mr. Ritchie encountered considerable difficulties. The paper-maker, Mr.

RITCHIE

Whatman, and the ink-maker, Mr. Blackwell, contributed, most successfully, all their skill to his laudable design, but the want of journeymen to enter into the spirit of the undertaking with that extraordinary exertion of care and ingenuity which it indispensably required, was a difficulty the most discouraging, which he had long to contend with, and never wholly conquered; men he could get who by bodily strength would pull down the press, and give the impression, but the giving the colour required a skill and patience so far exceeding what pressmen had any idea of in this country, that Mr. Ritchie found himself obliged to manage the balls and beat every sheet of those works with his own hands. He had men to pull, but every other part was effected by his own personal labour.

I have a copy of his bible now lying before me, and will venture to affirm, that in every requisite constituting good printing,—in richness and equality of colour throughout every page,—in that contrast of tints upon which the eye can dwell without fatigue, by the colour of both ink and paper,—it has not been surpassed by any work that has followed. It bears the date of M.DCC.XC.V. for John Parsons, Paternoster-row.

What this living father of English fine printing may have been in personal appearance in those days, I have no means of showing; but what he is at the present day, when called from my warehouse, and from handling the sheets of this very work, to sit for his portrait, may be here seen.

It will hence be evident that Mr. Ritchie, notwithstanding all his perseverance and skill in fine printing, had not the art of getting independence by his labours: he failed in business, and was succeeded in his efforts by Mr. Bulmer: Mr. Bensley and Mr. M'Creery followed, and from the presses of those gentlemen have issued some of the finest specimens of typography which this or any other country has produced.* Emulation is a powerful principle in our nature, and the success which has attended their exertions, contributed in a great degree to give a new tone and character to the profession. The first efforts at fine printing tended to any thing but a general improvement in press-work.

* It will not be thought foreign to the subject to observe here, that about this period Mr. Bell, in publishing his British Theatre, first set the fashion, which soon became general, of discarding the long f.

Every thing that was not paid for as "fine work" was "common work;" and by the pressmen, who, at the time alluded to were more masters of the trade than their employers, it was treated accordingly, perhaps for the sake of making the contrast the greater. Subsequent events, arising from the conduct of the workmen, together with the general introduction of the Stanhope and other improved presses, as well as machinery, having placed the choice of their workmen once more in the power of the masters, the general style of printing has become much improved.

Printing in very small type, below Brevier, has been pursued to a great degree of excellence but by very few printers. Mr. Rickaby,* the predecessor of the author of this work, was among the first who turned his attention to the beautifully minute. An annual work, of the pocket-book class, called "Peacock's Polite Repository," and a pocket dictionary, called "Peacock's Johnson," were among the best efforts of his ingenuity. Mr. Charles Whittingham, in small editions of the "Common Prayer," was eminently successful; but the "Diamond Bible" and "Prayer Book," by Mr. Corrall, in the beauty of eye-straining minuteness, surpassed all others, and took the lead of future efforts.

The great improvements in type-founding have proved an additional spur to the printer; and fine printing has of late been attempted by so many professors of the art, and so numerous and variable are the specimens they have produced, that a discrimination as minute as that which is required in forming an opinion of those of the pencil and the burin, seems necessary in judging of what is really superior in typography. Some printers imagine, if they do but make their pages sufficiently black, that the end is gained; others, if they are pale and clear; so that each exhibits a style peculiar to his own fancy. In typography, as in the fine arts, it is difficult to specify and investigate the qualities which constitute excellence and beauty; yet to an accurate observer, the productions of the several typographical artists vary as much as the figures of Flaxman, Chantry, or Canova, from the rude efforts of a rustic stone mason. Real excellence does not, however, depend upon so unfixed a principle; and, therefore, it would be

* "Mr. Thomas Rickaby, of Peterborough Court, Fleet Street, died August 21st, 1802, Æt. 49. He printed The British Critic, and was, in many other respects, a printer of eminence."—*Nich. Anec.* iii. 737.

difficult to point out every particular which it is necessary to combine, in order to accomplish that which may rank as a *chef-d'œuvre* in the art; yet to understand when it is effected is not so intricate; for when any one who has acquired a correct taste, sees a beautifully uniform type imparted to the paper, displaying all its proportions with a just degree of lustre and harmony, his conceptions of typographic beauty become satisfied, and the more he looks the more he admires.

The printers who have paid most attention to fine printing have endeavoured to produce that delicacy and sharpness of appearance on paper which is peculiar to the copper-plate work; but though such an effect may be very nearly approximated, it can never be perfectly attained, the impression being, as I have before remarked, accomplished by such completely different means. In seeking, therefore, after that which peculiarly belongs to another art, we are liable to a neglect of those excellencies which exclusively characterize our own; nor needs the mortification be very great that we cannot produce close imitations of copper-plate printing, when we see the difficult and abortive attempts of the copper-plate printer and engraver to imitate us; and when we consider how much more than the other our art is capable of performing. With proper materials, properly employed, the impressions from letter-press exhibit peculiarly fine relief and outline, which, in many respects, must be allowed to excel in beauty even the finest productions of copper-plate.

Those who have had opportunities of inspecting the early productions of the press, will be convinced that the art became retrograde in the course of time; for there are yet in existence works of the fifteenth and beginning of the sixteenth centuries, which, whether examined with regard to case or press, will bear a near comparison with any that are now produced. It has been previously remarked that printing, immediately on its invention, made singularly rapid advances to perfection, which may be easily accounted for by the facilities it afforded to the purposes of society, and more especially to the cause of literature; and the unexampled patronage it thus obtained, as being one of the most honourable vestibules to human glory.

The improvements which have taken place in all the arts con-

nected with letter-press printing have acted, no doubt, powerfully in stimulating the printers of this country to that extraordinary exertion by which such fine specimens of typographic beauty are now so frequently produced. As engraving on copper and on wood progressively improved, it became necessary that the typography which accompanied them should not, by a coarse and common appearance, serve but to disgrace that which it should rival, and abridge the gratification which might be reasonably expected from a union of the arts.

Although the powers of wood-engraving are limited, yet, as an art most intimately connected with our own, its importance is worthy of being held in the highest estimation; and were we not to attempt to force it beyond its capabilities, its advantages would be more esteemed. In consequence of several first-rate artists having put their genius to the stretch, in order that their works might vie with copper-plate, a false taste has been produced. It is true that some have sent out very beautiful specimens, affording a vast variety; but how curious soever these productions may appear, yet, on a comparison with impressions from copper, they will be found different things. The two species of printing has each its peculiar feature, which it is a vain attempt for the other to strive to equal. The deep, soft, regular black ground which can be given to a broad surface by completely covering it with fine ink is a property of letter-press printing which the copper-plate can never be able to accomplish; and there is a receding in perspective, and a general sharpness of outline belonging entirely to the latter which it is impossible for the former fully to attain. As it is a natural consequence of the different methods of engraving and working off, it is a species of dissimilarity that can never be entirely prevented. In speaking upon this subject, the author of the Printer's Grammar said, "We are as much disappointed in examining a wood-engraving, in hopes of finding the softness of flesh and delicacy of skin which is produced by an artist on copper, as we are disappointed in not meeting in copper with that broad, deep shade, and strength of contrast which the engraver on wood may always exhibit." Now with regard to the great defect of wood-engravings in general thus spoken of, it is presumed that a considerable advance has been made towards perfection by the

artist who executed the portraits exhibited in this work, in which that "delicacy and softness" required in managing countenances is conceived to have been very admirably achieved.

No kind of engraving is better calculated than that of which I am here speaking, to preserve the real outline and proportions of the designer. Indeed, this will be more easily credited when it is stated that he generally makes the drawing with pencil on the block; and the duty of the engraver is to leave those lines standing by cutting away the interstices with the greatest exactness possible. Thus, as the most unfinished etchings on copper of the ancient masters are more valuable than any imitations of them by a second hand, so are the powers of the engraver on wood preferable for giving, as far as drawing and proportions are concerned, a faithful transcript of the original design. The great point, therefore, seems to be, to consider properly what is the real province of the art, so that expectation may not be raised from it which, from its nature, cannot be gratified; and the art and the artist be unjustly depreciated in consequence of a disappointment which it is beyond the possibilities of either to prevent.

It may be necessary here to remark, that the difficulties attending the printing of wood-engravings are very considerable, and that, however the designer and the engraver may labour, should the printer not be a judge of the effect intended to be brought out, and know well how to manage his block, all his labour will be fruitless. This observation applies more particularly to the finer kinds of engraving, but in some degree to all. In this department of the art much depends upon the quality and colour of the ink; and the fine specimens that have been produced by the gentlemen previously named, as having signalized themselves by the high degree of perfection to which they have carried the art, were printed with ink made or improved by themselves. Ink, however, of late years has been manufactured in a much more satisfactory manner than it was formerly, yet perhaps not so as to have attained that positive perfection of which it is susceptible in order to work the finest engravings in the most finished manner.

It has been before stated that the printers on the continent (those of Parma and Paris in particular) have it in their power to produce finer specimens of printing than can be done by us. One

of these advantages arises from the nature of their climate, which is not subject to the variations of temperature we daily experience, and which acts powerfully upon various preparations of the oil of which our ink is composed, disposing it at one hour to spread equally over the balls, or rollers, and at another rendering it so glutinous and stiff as to tear the surface of the paper, and defy the efforts of the pressman, without a great increase of heat in the place where he is working; and even should he raise the temperature ever so high, if the frost be intense, his endeavours will be fruitless. It is a curious fact, that heat will not entirely counteract the effects of a freezing atmosphere upon some kinds of printing ink.

But the chief obstacle to the production of fine printing, or indeed to any printing above the very commonest standard, arises from the present mode of manufacturing paper; this has been so much dwelt upon in a former part of this work,* that it would be tedious were it here repeated.

Taste, which is continually changing, has made strange revolutions in the form of our printing types; we no longer use the thin and meagre-faced letter of the Elzevirs, Baskerville, Martin, &c. with which our works were formerly printed. That there was ample room for improvement is sufficiently manifest, but the rage unfortunately ran into the opposite extreme, and nothing was considered handsome but that which exhibited as broad a surface as the dimensions of the body of the type would admit, in many instances forcing the letters so close together, that the word appeared an indistinct mass of black, not to be read with facility. This proved a short-lived fashion, and of benefit to no one, except the ink-maker. Another extravagance has been daily increasing upon us, from the desire of the letter-founders that their types shall stand well in line, and which is certainly a great perfection: in order to render this object more apparent, the horizontal line at the top and bottom of the letter, where it occurs, is carried so far out, on each side of the stalk, as to give the page somewhat the appearance of being ruled. Nor can the present general squareness of form and grossness of face be considered as removing any defect. The disadvantages attending such letter are manifold. Owing to the delicacy of the top and bottom lines, it will not last so long

* See Section V.

as that of the old fashion, the slightest use destroying these lines, and at the same time the newness of its appearance; besides, by exhibiting a much larger surface to the pressman, to be covered with ink, more beating is required, and a heavier pull, a duty which we rarely find men, striving in the ordinary course of business to make the best use of their time, willing to bestow, nor can we expect it, without increase of pay; and without this care, the effect produced is worse than that of letter from the old matrices. The public taste will, it is to be hoped, in time settle between the two extremes, and when that shall take place, we shall have the pleasure of seeing strength, grace, and lightness, exhibited on the same page.

This has, in fact, since the above was written, been the case. Most of the eminent booksellers now object to the use of the fat-faced type; and founders of the highest repute are vying in the production of letter with a face elegantly proportionate, and formed for durability and profit to the printer. The introduction of fat-faced types into book-work has been severely reprobated by many as well as the author of this work: yet, it must be admitted, that when cut with taste and ability, when quite new, when used in printing open and thick-leaded works, as poetry, &c., and when carefully worked, at twice or thrice the expense of common work, an effect brilliant and ornamental is produced; though not very congenial, perhaps, to the eyes of those who buy books to *read* them. The disrepute into which letter of this cut has fallen has probably arisen from the negligence, inattention, and want of taste with regard to shape and symmetry with which they were cut when first introduced. It has been already said, that in typography, as in the fine arts, it is difficult to investigate and specify the qualities which constitute beauty: but fatness seems to have been considered by the letter-founders as an adequate substitute for all such qualities.

At one period, in imitation probably of the celebrated Didot, a practice prevailed of cutting the ceriphs and fine strokes of types to an excessive degree of sharpness. This, though it gave to fine work and early impressions a neatness and finish resembling copper-plate, was very detrimental, as these sharp edges would not stand for any length of time the action of the press, but either

broke off or were blunted, so that the fount soon acquired the appearance of age and long service.

But these extravagant fancies have had their day, and the shape of type is subsiding to a happy medium, likely to become a standard between the awkward stiffness of the Elzevir and Baskerville, and the outrageous kind of face only adapted for placards, posting-bills, invitations to the wheel of Fortune, and job-printing in general; and for which purposes it appears so appropriate as to induce a probable supposition that its use will be permanent in that class of printing.

Fashion and Fancy commonly frolic from one extreme to another.* To the razor-edged fine lines and ceriphs of type just observed upon, a reverse has succeeded, called "Antique," or "Egyptian," the property of which is, that the strokes which form the letters are all of one uniform thickness!—After this, who would have thought that further extravagance could have been conceived? It remains, however, to be stated, that the ingenuity of one founder has contrived a type in which the natural shape is reversed, by turning all the ceriphs and fine strokes into fats, and the fats into leans.—Oh! sacred shades of Moxon and Van Dijke, of Baskerville and Bodoni! what would ye have said of the typographic *monstrosities* here exhibited, which Fashion in our age has produced? And those who follow, as many years hence as you have preceded us, to what age or beings will they ascribe the marks here exhibited as a specimen?

From such *whimsicalities* as these, after-times may fall into many a whimsical illusion; and it is not impossible but *unique antique typographiques* imprinted in "London's City," may be sold to the best bidder as genuine Egyptian relics of antediluvian origin, and form a choice portion of the treasures in the museums of the virtuosi!!

With respect to the colour of printing-ink, a difference of opinion certainly exists; one kind being admired for its glaring effect, and another for its softened richness and warmth; the latter, though in fact of as deep a colour as the former, is yet so tempered as not to injure or fatigue the eye, becoming more agreeable the more it is examined. A few printers manufacture

* See also p. 404.

TYPOGRAPHIC MONSTROSITIES!!!

VERY NEW OLD ENGLISH,
or Double Pica Black.

Modern Antique, or
***Two line English of* 1824.**

ENGLISH ITALIAN
FOR 1824.

their own ink, or rather attempt an improvement upon that they have from the makers. Indeed, that which was formerly sold by the manufacturers possessed very few of the requisites necessary for fine printing.

Some directions may be expected for assisting the printer in producing fine specimens; but every one who has attempted improvement has some peculiarities which are not in common practice; therefore, all that can be done is, to give a slight sketch of the general method.

The PRESSES best calculated for fine, or indeed for any other kind of printing, are now the subject of competition between rival manufacturers, and will hereafter be fully treated of.

The PAPER to be wet in such a manner as to retain its firmness, yet be sufficiently soft to apply closely to the surface of the letter, and take up all the ink. [See preceding chapter.]

The INK must depend entirely upon the judgment of the printer, the liberality of the employer, and the honour of the ink-maker.—But more observations will be made relative to ink in a subsequent chapter.

The BALLS, or ROLLERS, on which so much depend, ought to be particularly attended to. [See p. 366 and chap. followng the present].

The TYMPANS to be continued in a state of tension, by changing the blanket and the slip-sheet as they become damp.

The BLANKET must be of fine broad-cloth, or kerseymere, and only one to be used.

When printing large letter, the surface of which requires to be well filled with ink, a sheet of tissue paper, or common paper damped, is often laid between every impression, to prevent the sheets from setting off on the back of each other.

But however laudable it may be to cultivate the art to perfection, it is to its common and more general application that we are to look for its great and beneficial effects upon the human intellect, and upon nations and societies of men. The Press is the great engine by which man is enabled to improve the faculties of his nature; it is the preserver of the knowledge and acquirements of former generations, and the great barrier, when not perverted by the hand of power, against the debasement of the human mind, and the depressing influence of despotism.

"Ages remote, by thee, VOLITION, taught,
Chain'd down in characters the winged thought;
With silent language mark'd the letter'd ground,
And gave to sight the evanescent sound.
Now, happier lot! enlightened realms possess
The learned labours of th' immortal PRESS;
Nurs'd on whose lap the births of science thrive,
And rising arts the wrecks of Time survive."

DARWIN'S *Temple of Nature.*

INKING APPARATUS.

CHAPTER V.

Apparatus for inking the Type—Lord Stanhope's attempts unsuccessful—Effected by a peculiar Composition—Forster's Composition Balls and Cylinders—Value to Printing Machines—Ingredients of the Composition—Apparatus for Melting and Casting—Directions for keeping the Balls and Rollers in good order—Effects of the Atmosphere—Applegath and Cowper's Iron Table and Apparatus—Forster's of Wood—Arding's of Iron and Wood—Mr. Parkin's.

THE late earl Stanhope, when he invented the Printing-Press which will bear his name to posterity, coupled with his object an idea of inking the forme on the press by means of a revolving cylinder; and in pursuit of this plan, spared no expense in endeavouring to find a substance with which to cover his rollers. He had the skins of every animal which he thought likely to answer the purpose, dressed by every possible process; and tried many other substances, as cloth, silk, &c. without success. The necessary seam down the whole length of the roller was the first impediment; and next the impossibility of keeping any skin or substance then known, always so soft and pliable as to receive the ink with an even coat, and communicate the same to the forme with the regularity required. All the presses of his early construction had, at each end of the table, a raised flanch, type high, for the purpose of applying his rollers; but the obstacles interposed by nature herself totally baffled and defeated his lordship's plans in this respect.

The idea entertained by lord Stanhope, and which had also been hinted at by Mr. Nicholson, of colouring or inking the forme at press by means of cylinders, is far from being new. Papillion's work on engraving, to which I have already referred, gives

detailed particulars, elucidated by engravings, of rollers for inking: and although by him mentioned incidentally in his treatise on wood-cut printing, yet, if applicable to that branch of art, it is clear it might have been easily convertible to all letter-press work.

All that lord Stanhope so anxiously desired, and which even his inventive and indefatigable powers could not surmount, was at length achieved by the mere chance observation of a process in the Staffordshire potteries, in which they use what are there called dabbers. These were formed of a composition which appeared to possess every requisite for holding and distributing the ink, imparting it equally over the forme, and being easily kept clean, soft, and pliable. Mr. Forster, an ingenious printer, then in the employ of Mr. S. Hamilton, at the bookseller's printing-office, at Weybridge, was the first who applied it to letter-press printing, by spreading it, in a melted state, upon coarse canvas; and making balls, in all other respects in the usual manner. The inventors of printing *machinery* soon caught the idea, and by running the composition as a coat upon wooden cylinders, produced the apparatus so long and unsuccessfully sought by lord Stanhope, and without which, no machine-printing would ever have succeeded.

Messrs. Applegath and Cowper used it for the *rollers,* united with their table and apparatus hereafter to be described, with intent to secure it to themselves by patent. But, as no patent would hold good for a compound known long before, with the mere addition of a cylinder; and a substitute being found for their table, ink-trough, and cylinder, it was soon exposed to general use; and an apparatus equal, and by some deemed superior to theirs at fifteen guineas price, was offered to the trade for two and a half.

As this composition has now become one of the most essential requisites of a printing-office, and as many printers may be desirous of making their own balls and *rollers* (which plain name seems to have been generally adopted for the revolving cylinder), I shall take some pains to describe such proportions of the ingredients as I have found to answer best in my work, as also the apparatus required both for balls, hand-rollers, and machinery, and the process by which the whole is manufactured.

The composition (but which for shortness shall be called in future compo) consists principally of glue and molasses, or

treacle. I have seen various receipts of ingredients and proportions, some possessing the recommendations which distinguish the recipes of ancient physicians; namely, a vast variety of articles with counteracting properties. But the simple prescription which my experience has proved best, is, to provide *glue* of the finest quality, made from the cuttings of parchment or vellum; fine green *molasses*, pure as from the sugar refiner, at least not adulterated for the bakers' or grocers' shops; and a small quantity of the substance called Paris-white,* and you will have every ingredient requisite for the compo. The proportions have been so variously stated, and so different from what I have found to be eligible, that I am wholly at a loss to account for such differences.

	Pounds of Glue.	Molasses.
One receipt which now lies before me *in print*, says	2	1
Another, MS.	2	3
I find a mixture of	2	6 or 2 7

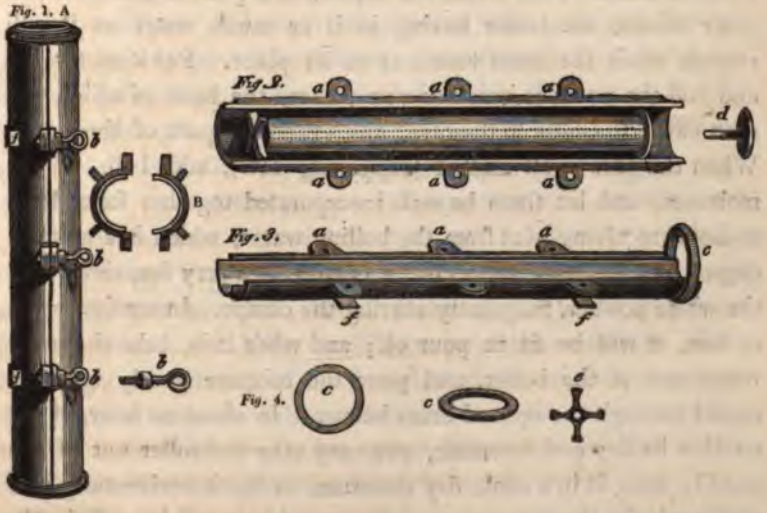
and about half a pound of the Paris-white, will make the compo of a superior quality to any other proportions, and will be sufficient for two demy rollers. The great disparity which appears in these receipts may perhaps be attributed to a difference in the quality of the materials, and to the mode of management. But as my wish is, to enable every one that pleases to decide by his own experience, I shall state, minutely, my apparatus and process.

First, it is necessary to procure a mould very accurately made, and well finished. Mine is made of brass, in two parts, adjusted to each other with rebates, the inside being finely turned and polished, and having flanches projecting by which the parts are screwed together by the screw and lock-burr. To each end is also fitted a collar, *c;* and a circular plate of iron, *d*, fig. 2, is accommodated with great precision to the bore of the mould, having a projection in its centre to enter a cylinder of wood about

* This is the carbonate of barytes, *terra ponderosa*, or ponderous earth; the most active of alkaline earths; and acts upon the animal economy as a violent poison. It is found in combination either with the sulphuric acid, forming the native sulphate of barytes, or heavy-spar. It is supplied from Yorkshire. It is chiefly used in adulteration of paint, giving a body almost equal to white lead. It is very difficult to be obtained pure, being often substituted with Spanish-white of the oil shops, which is nothing more than a finer kind of whitening.

which the compo is to attach itself, and to hold it exactly in the centre of the mould, and the other end of which is kept in a corresponding position by means of a brass piece, *e*, to allow of the compo passing down between the interior surface of the mould and the wooden cylinder. The little projections on the sides of the mould, *f*, serve as feet to support each half in a steady position while lying upon a table or elsewhere, as in fig. 2 and 3. Previous to joining, the parts of the mould must be nicely cleaned and oiled; and the greatest care taken that no particle of compo, grit, or dirt, remain in the rebate. The parts being carefully placed on each other, and the wooden cylinder fixed inside, the screws must be put into their respective places in the flanches as marked, and when all is properly made tight the mould is to be set upright for receiving the stuff.

Fig. 1, A, represents the mould placed ready for receiving the compo from the kettle; fig. 1, B, shows the same in section; fig. 2, shows one-half, with the mode of fixing the core, or wood cylinder; fig. 3, the corresponding half; fig. 4, sections: the reference letters applying to each figure.



The next material part of the apparatus is the *melting kettle.* This must be a double vessel like a glue-kettle, so that the compo in the interior may be melted by the heat of the boiling water in the exterior. For this purpose a strong boiler may be the best or readiest thing found, into which let a tin vessel be fitted, with a

flanch to rest on the rim, so as to leave one or two inches clear under it. This vessel may be six or eight inches above the top of the boiler, so that the lid of the one may fit the other; and it must have a large lip for pouring out the compo.

Being thus prepared, put the glue into a little water for a few hours to soak. Pour off all the liquid, and put the glue into the inner vessel, the boiler having in it as much water as it will contain when the inner vessel is in its place. Put it on the fire and boil the water as quick as you please, the heat of which will soon cause the glue to dissolve, and evaporate part of the water. When the glue is all melted (supposing 4lb.), add 14lb. of the molasses, and let them be well incorporated together for at least an hour, receiving heat from the boiling water, which is a uniform degree that cannot exceed 212°. Then with a very fine sieve, mix the white powder, frequently stirring the compo. In another hour, or less, it will be fit to pour off; and when it is, take the inner vessel out of the boiler, and pour the mixture gently into the mould through the opened brass keeper. In about an hour, if the weather be dry and favorable, you may take the roller out of the mould; hang it in a cool, dry situation, or lay it horizontally in a rack made for the purpose, and the next day it will be sufficiently hardened for use. As there will be rather more of the compo at each end of the cylinder than would work clear of the frame in which it is to revolve, cut off from each extremity about half an inch, by encircling it with a piece of fine twine.

To keep the rollers thus made in good condition for working, a

place should be chosen where the air has free circulation, without being subject to the extreme heat of the sun in Summer, or the freezing damp air in Winter: in short, in as even a temperature as possible. It will be necessary to keep a stock of more rollers than are at work; as it is frequently found, when a roller is *sick*, or greasy, or soft, or you do not know what is its ailment, that washing it clean and hanging it to rest for a time, restores it to as good a state as ever.

One other circumstance must be noticed, namely, the influence of the variable temperatures of different situations on this composition. This I have had particular opportunities of knowing, from having carried on business in two distant offices. It frequently happened that when the compo was working kindly at one office, nothing could be more teazing than its progress at the other. Indeed, while I was supplied by those who make for the trade, one of my houses frequently gave them a great deal of trouble. I have heard both Forster and Harrild say, "that they were obliged to make a harder compo on purpose for my house and one or two others similarly situated, than the customary temper of the mixture:" and, frequently, the only alternative was, to find me a roller that had got hard and useless at some other house, to suit the low temperature of mine. The difference was this—one of my houses had the press-room on the ground-floor, the joists and flooring lying on the earth; the sink room adjoining; wet sheets hanging very low; very little influence from the sun; and no thorough ventilation; consequently, from the humidity of the atmosphere engendered by these circumstances, it was a constant complaint that the compo was too soft. At my other house the press-room was on the two-pair floor; the poles very high; the sun's rays had free admittance; and the ventilation was very complete. Here, the compo, complained of as too soft at the former house, was all that could be wished: hence it became the roller-nursery; and by sending them to hang up a day or two, when out of order at the other place, they became firm and fit for work.

This principle, carried to a proportionate extent, must be applied when the compo is made for, or in, other climates; and whenever the printer has to encounter these varieties of temperature, either in this country or another, he must, by a judgment founded on experiment, ascertain the proportions of the harder or softer

ingredient, and regulate his mixture by the circumstances of his situation.

Notwithstanding the general use of these compo-rollers, balls will be found sometimes necessary to vary the mode of work. Cards, single cuts, light formes, &c. may require the experiment, at least, of a change. In order to make the *compo-balls*, a mould will be also required. This I have had made from a circular plate of copper nicely planished, and beaten concave so as to sink in the centre about half an inch; which is turned over a wire at the circumference, and supported to a level by three little feet. Then, as the compo is not required to be more than a quarter of an inch thick in the centre of the face of the ball, I have a board made the same diameter as the mould, and convex to a quarter of an inch, in order to give the compo a shape approaching to the convexity of the ball without too much stretching its component parts. Upon this convex board I strain a square piece of coarse canvas by turning over its corners, and fastening them with a small tack or cords. Then, the compo being made hot, and the copper mould being made warm also, I pour about half-a-pound from the kettle, taking care that none of the condensed steam drops on the mould, and pressing the canvas with a half-hundred weight, let the whole cool gradually, and it will possess a face as smooth as the planished copper, the compo growing thinner and thinner from the centre towards the circumference, which contrivance renders it more convenient for plaiting when knocked up into balls. It may be adviseable to give the inside of the canvas a coat of paint, in order to prevent the compo from pressing quite through and adhering to the wool, or hair, or lining, if any should be used; or using an inner lining of finer canvas or linen.

This compo, if it possesses every desirable quality for the purpose here described, will yet be found to draw the dirt or flue from off the face of the type, and to retain it, in spite of the *distributing* on the table, with far more tenacity than inferior stuff. It will therefore be necessary to clean and scrape the roller or ball, two, three, or four times a day, according to the foulness of the paper. This is best done by keeping some refuse ink on a spare table; and, covering the roller or ball with a thick coat, scrape the whole off with a knife.

To wash the rollers or balls made with this compo, nothing

more is requisite than the application of water, in cold frosty weather a little warmed, but cold as possible in warm weather, which needs only be used with the hand. Before they are worked again after washing, an hour's drying will be necessary. Sometimes, if from the effect of bad ink they show an appearance of grease, and make friars (white spots, or white-friars), a mixture of spirits of turpentine and water will be necessary; or a little pearl-ash lie. If becoming soft by a sudden change in the atmosphere, a washing in spirits of turpentine will harden them. If by a cold or dry night they are found too hard at first getting to work in the morning, a few turns at a moderate distance from the fire, or over the flame of a burning sheet of paper will be the remedy. Sometimes they will get into such a state as to require the flame of a candle to be passed over the whole face, which must be done with the greatest care and patience.

To make the smaller rollers for jobs and galleys, you may unite, by plugs of wood, two or three together; or you may have the open keepers, with double projections to place between each when you fill the mould. They are easily divided by the cord as above directed.

If you have old compo remaining, and find it necessary to renew either balls or rollers, a small portion of the fresh material must be incorporated with it; but, as the rules already given can alone determine the proportions requisite to make the compo harder or softer, it will not be possible to lay down the precise quantities of the respective ingredients that may in such cases be proper. The molasses, or vegetable substance, will certainly evaporate and become impoverished by frequent meltings: the glue, or animal substance, will grow harder: the earthy substance will retain its quality: but a little addition of new spar will be necessary to clear and bind the whole together.

The cylinder upon which the compo is cast is made of alder-wood, turned to a diameter of two inches; so that the coat of compo which it receives is half-an-inch. The cylinder is perforated through its centre, having a brass bush, or collar, driven into each end, through which is passed an iron rod, as an axis, with an enlarged head at one end, and tapped with a screw at the other. This axis is received in corresponding holes at the angle-turned ends of the frame, and is there secured by a nut fitted to its screw-

end. To the upper bar of the frame are fixed two handles of turned wood, having considerable circular projections for keeping the handles from coming in contact with the ink upon the table.

In justice to the persevering zeal and obliging disposition of the two artists to whom the profession are chiefly indebted for the success and supply of the compo balls and rollers, I cannot omit to record, more emphatically, the names of Mr. Forster and Mr. Harrild.* They had both the advantage of being printers by profession, and were consequently more capable of appreciating the necessary qualities of their manufacture. But I am afraid the competition of the two has not left to either a chance of enjoying the fair remuneration which their exertions have deserved. The charge at first for the balls, was two shillings per week, per press, exchanging and keeping them in order as often as found necessary. Upon the introduction of the rollers you either paid for one in the price of each apparatus, or table: or, if purchased separately, the price was a guinea each; and for exchanging and keeping in order, the same weekly compensation as for the balls. But the effect of the competition above alluded to, has been, to reduce this trifle to one shilling per week, and I believe even to sixpence; a very inadequate acknowledgment, considering the advantage afforded to both master and man: for the invention was at once the means of getting rid of the nauseous, filthy process in the pelt-house, and rendering a press-room as free from offensive effluvia as any other part of the office. A great annual expense was also saved in skins and wool; and a vast deal of the precious time of the men. Upon

* In the history of inventions it frequently happens that two or more competitors start up to contend for the honour of being the primitive sources of a new project. In the present instance, I believe it would be very difficult to assign the palm. The best way of deciding such a point, is, perhaps, to allow the possibility of simultaneous experiments and effects.

the introduction of the balls I calculated that the saving to each man was half a day in a week; and I conceive that still more is saved by the rollers. But what is above every other consideration, the quality of the work is materially improved; and the labour is reduced to comparative ease by rolling over a forme instead of beating it.

It is curious to contemplate the various changes which have taken place in a press-room, as far as regards manual labour, within a very few years. Previous to the introduction of lord Stanhope's press, the *beating* was the lighter labour, and *pulling* the heavier; to the latter of which an apprentice was seldom put, except for very light-work, for the first twelve months. Then pulling became the lighter—the stronger beat, and the weaker pulled. But when the rollers were introduced, the stronger again took the bar, and the weaker rolled: and a well-grown lad was capable of taking both parts in the first month of his service. The pulling is now the only hard labour; the rolling requiring only a due degree of adroitness and attention to colour.

The rollers are found to answer for every description of work—for the largest or smallest type—the lightest or heaviest forme—all solid type, or all rule work—for the strongest or weakest ink—for black, or red, or any colour; and indeed, upon the whole, the introduction of the invention constitutes a new era in the art of printing.

It is now necessary to describe the other parts of the apparatus connected with the inking by cylinders.

The first was that of Messrs. Applegath and Cowper, before alluded to. It consists of a trough for the ink—a cylinder to revolve in the trough—and the table to distribute upon—the whole of which is supported by a firm stand of cast-iron screwed to the floor. The frame is formed of two sides of cast-iron united by three bolts with nuts and screws. The ledges cast about the middle of the sides serve to hold a convenient shelf. The top is made with deal, which being screwed to the sides, is covered with sheet lead rendered perfectly level and smooth. To the upper back part of the sides of the frame are cast prolongations to receive the axles of the trough and cylinder. The receptacle for the ink, or trough, is formed chiefly of cast-iron; but it has a lip

or edge of wrought plate-iron rivetted on the front, and ground very exact to the surface of the cylinder; and which is turned up at each end to work in grooves in the cylinder, in order to retain the ink. To the back of this trough are rivetted two pieces of iron upon a level with its pivots, which act as levers: and upon these levers are hung weights, which being placed at a greater or less distance from the trough, cause the ground edge beforementioned to press with greater or less force against the metal cylinder, and thus regulates the quantity of ink to be taken by the roller. The ink being in the trough, and the cylinder being revolved by means of the handle, it will acquire a fine even coat of colour, The hand-roller is then applied by the workman to the ink cylinder, from which contact it receives a single line of ink, and is then rolled backwards and forwards upon the table until the ink is thoroughly spread or distributed both upon the roller and table. He then conveys his roller to the forme, and passing it once or oftener upon and over the type, it will have communicated a coat of ink, of an equal consistency and colour throughout.

The material defect in the apparatus above described is, that the ink and entire surface of the cylinder and table must remain constantly exposed, during the whole time of work, to the flue and dirt arising in the press-room, which, from the nature of paper as now made, is known to be very considerable. The scraping of the cylinder against the edge of the trough occasions it to leave all the foul particles it may have collected, as well as what the roller may communicate of that which it gathers from the forme, along with the ink in the trough, which is all drawn together by the revolving motion of the cylinder, into a cylindric form also; and appears, when the latter is put in motion, to be a second black cylinder turned by the motion of the iron one. Thus all becomes mixed together until a considerable quantity of foul matter has accumulated in the trough, and it becomes necessary to clean out all the ink remaining, which is thus spoiled and wasted.

A more simple and cheap apparatus for this purpose was immediately got up by Mr. Foster, the inventor of the composition balls.

It is a stand having its two legs and feet of cast-iron; and its top, upon which the ink is distributed, instead of lead, as in the former apparatus just described, is mahogany. Behind this, elevated about two inches, is the stage for taking the ink on to the roller. At either end of the stage is a recess for receiving the contrivance which contains the ink. This is similar in shape to the brayer formerly used; but turned hollow, with the handle and top to screw on; at the bottom are holes, and when ink is wanted on the stage, the workman, taking hold of this bottle-brayer, moves it from one recess to the other, drawing it slowly along the stage. In this movement the ink, by its own gravity, will issue out from the holes at the bottom, and leave a portion on the stage, more or less, according to the rapidity or frequency of its transit.

Mr. Arding soon improved upon Foster's apparatus, by making the ink-stage of cast-iron, with circular recesses; and the whole table more of a solid form; both makers now adopt the same pattern; but the bottle-brayer has not been found to answer, as the ink soon clogs up the holes, and the wood is liable to be split by the screw at the top; and an old servant of the press-room, the common brayer, has again been found the most effective for this purpose.

I have had several of these inking tables at work, and find a decided preference due to the last described. The mahogany surface seems more congenial to the temperament of the ink and roller, than either the lead or iron. The ink is taken better, and distributes better. A line of colour is taken as perfectly from the stage as from a cylinder, since the roller, being cylindrical, can only touch the ink in a line; and it is only giving the roller a portion of a revolution on the stage to make it take a greater quantity of colour if necessary. More of the flue and dirt, inseparable from the working of paper, is held by the wood than by the lead; and consequently, the roller keeps cleaner, and the forme works better. The table is easily washed by the lye-brush, and no further waste of ink is occasioned.

This apparatus has been further improved by substituting a box and cylinder for the stage and brayer. The advantage of which will be, that the quantity of ink on the cylinder to come in contact with the roller, is regulated by a pressure at the top, out of

the body of the ink, instead of at the bottom against which the ink must rest.

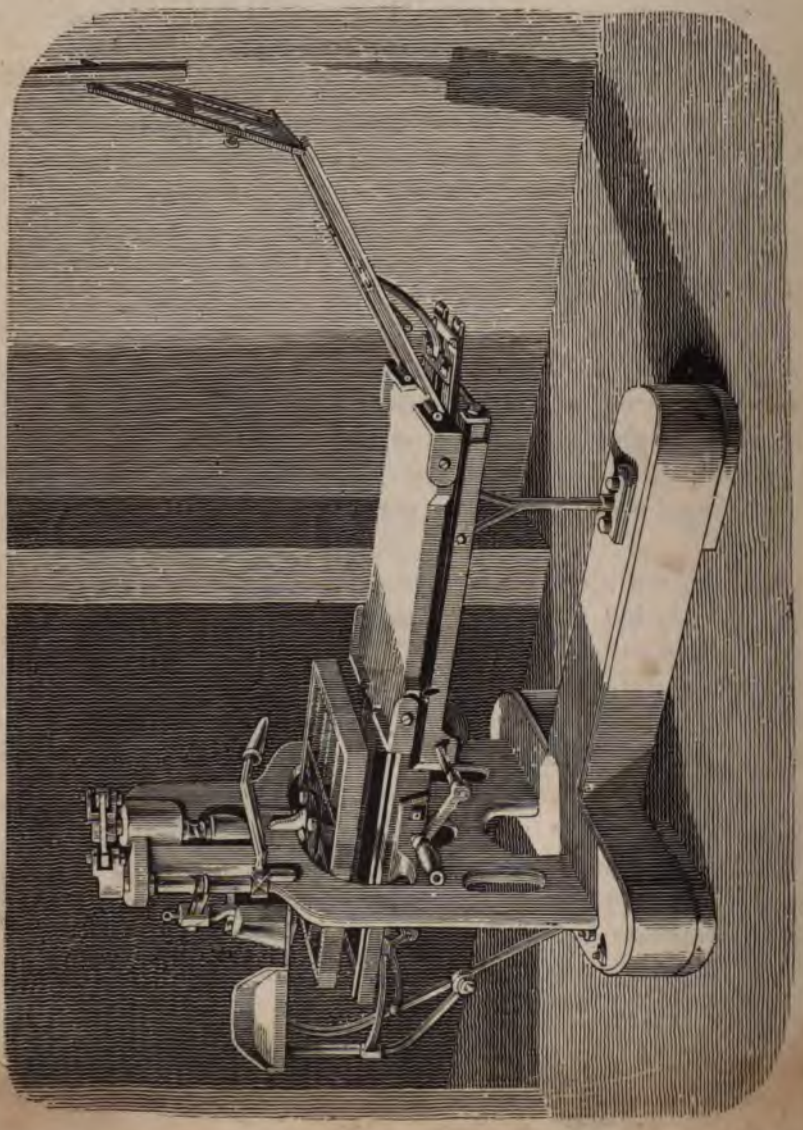
The cylinder is of mahogany, and, as here shown, moves in a box or trough which contains the ink; and which has a lid moving on hinges coming nearly over the top of the cylinder. To the under edge of this top is nailed a slip of thick butt or sole leather. This, by its naturally elastic quality, will always press upon the cylinder according as the lid is more or less tightly screwed down by the thumb-screws shewn in the drawing. This leather will also intercept in its way any filth which may arise from the depôt of ink before it can reach the cylinder: and which, when accumulated, may, by unscrewing the lid and throwing it open, as in the upper figure, be instantly scraped away with one stroke of the knife; and no further waste of the ink incurred. It will be seen from the lower figure, that no part of the ink in this apparatus is exposed; and only a very small portion of the cylinder at the time of working.

An inking apparatus for the purpose of enabling one man to perform all the operations of press-work, was invented and patented by Mr. Thomas Parkin, in the year 1820. This was contrived, by frame-work, rollers, catgut-bands, colour-boxes, &c. to perform the complex operations of taking ink, distributing, and inking the forme, with the common composition-covered cylinder. The frame was fixed on the off-side of the press, and one pressman performed the whole of the work, by stretching his left arm across his forme at the same time that he lifted up his tympans with the right, drawing the cylinder once or twice over the forme by taking hold of the handle of the moving frame; next, retiring

it back again, he proceeded on to throw up the frisket, and perform the other processes of press-work.

On the fixed frame of wood, is a square frame of iron, formed to slide to and fro upon guide-rollers; a narrow plate, or table, is fixed horizontally, on a plane with the forme, and receives the ink from a small roller, called by Mr. P. the furnishing roller; this is supplied with ink from two boxes, one being fixed at each end of the table; these boxes have the sides fronting the table open, except a covering of fine wire-gauze: the furnishing roller, by the same exertion of the pressman, traverses the table at right angles to the direction in which the inking frame moves, and striking against the porous face of the ink-box, receives a portion of the colour which exudes, the equal distribution of which upon the circumference of that roller, is effected by a number of small metallic rollers, fixed in its frame, and pressing on its upper quarter arc; the roller in its traverse along the table, leaves an equal surface of ink, which is then taken up by the contrary motion of the large cylinder, and thus imparted to the forme.

This invention, however ingenious in detail, was not found to answer its intended purpose. In the first place, it required a space on the off-side of a press which the situations of press-rooms would rarely afford; and, in addition to this inconvenience, the man had not sufficient command of the main roller to make the distribution and quantity of the ink suit the work; and as a final objection, and perhaps the greatest, it must have produced in the mind of every pressman it employed the unpleasant feeling that he was turning another out of work. I think I have as much perseverance as most men in any experiment of possible advantage, but my expectations from this machine were soon relinquished.



The Printing Press of the Stanhope Construction.

To face page 637

IMPROVED MANUAL PRESSES.

CHAPTER VI.

Of modern invented or improved Manual Printing Presses—The STANHOPE; Descriptions and Engravings of its various Parts; application of the principle to the old Press—The Ruthven—Presses of Ridley and others—Cogger and Scott—Clymer's Columbian—Stafford—Napier—Treadwell's Treddle—Watts—Barclay—Medhurst—Stafford—Hope, of Jedburgh—Taylor and Martineau—Church—Babbage—Pouchee (for type)—Wilson—Hansard.

THE STANHOPE PRESS.

DUE respect to the disinterested spirit of the noble inventor, as well as a just estimation of the merits of the invention, requires that I should begin to treat of *modern* Manual Printing Presses with that of lord Stanhope. In a preceding chapter an ample account has been given of the principle upon which the Stanhope-press is constructed, with general references to the engravings. Here a perspective view of the press is given, and a description of the several parts will be inserted in detail.

The joiner's press requires great labour to produce an adequate impression from heavy works in small letter; it must, therefore, have been an important point to gain an accession of power, with, at the same time, a diminution of labour. This was first accomplished by the Stanhope press, which is capable of all the force of the common press, with, perhaps, a tenth of the labour.

In the formation of his iron press, earl Stanhope must have found many useful hints in *M. Anisson's Premier Mémoire sur l'Impression en Lettres, suivi de la Description d'une Nouvelle Presse exécutée pour le Service du Roi*; in which he says—" Je me suis attaché principalement à rendre son action et ses mouvemens

les plus indépendans qu'il m'a été possible du maniement déréglé des ouvriers auxquels elle est confiée." This has been particularly attended to in the Stanhope press, and nothing is left to the judgment of the pressman but the colouring.

After many expensive and tedious experiments, his lordship, aided by Mr. Walker, an ingenious mechanist, succeeded in this important invention to the full extent of his highest expectations; since which, the principle has been applied to the common joiner's presses, but without any very general success.

Since its first introduction, the Stanhope-press has been made by several persons at a price considerably lower than that charged by Mr. Walker, the original manufacturer, whose price was ninety guineas for a demy-press. Messrs. Fowler, Neal, Jones, and Co. of King's Arms Iron-Works, Cupar's Bridge, Lambeth, were the first to benefit us by the competition, and have made many upon the same plan for sixty guineas, the first of which has worked several sheets of this book. This diminution of the great expense of purchase was received with much satisfaction by the trade, being calculated to do away the only objection which was likely to preclude its general use. Whether their presses were as finely finished as those from the original manufactory, is a question of but little moment; they acted sufficiently well; but both of them were, from their very construction, subject to serious injury and mischief, they were peculiarly liable to break in that part immediately on a level with the table and platten, from the curved shape of *the staple* (the cast-iron frame answering to the cheeks, head, winter, &c. of the common presses, being so denominated) which sustained all the resistance to the power of the machinery, and to repair which, incurred an expense of eighteen or twenty guineas.

As the internal construction of the press cannot be shewn in the general view of it, we proceed to a dissection of the principal parts; and, with the assistance of a separate figure for each, shall describe their construction and use, and then refer them to their respective situations in the general view.

Fig. 1.—*Bar-handle, Arbor, and Coupling-bar.*

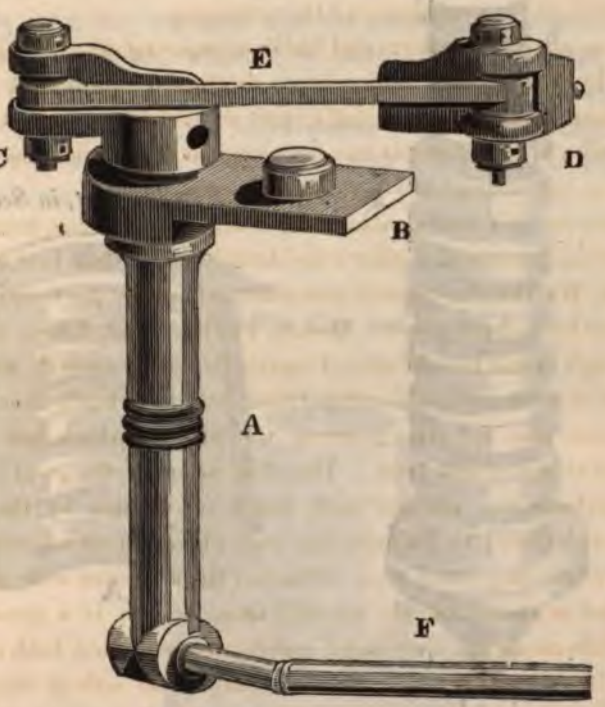


Fig. 1 shows part of the bar handle, with the apparatus by which it is connected with, and acts upon, the spindle, or screw. A is an upright pillar, or arbor, situated at the outer edge of the staple of the press, its lower end resting on a pivot, its upper being held by the top plate B, through which it passes, and receives the piece C, or arbor head; a coupling bar, E, connects this with a similar piece, D, the screw head, and in which is fitted the top of the screw. The top plate, B, is fixed to the top of the press by a screw, the head of which is seen in the figure. F shews the insertion of the bar handle in the arbor, and the figure, therefore, explains the means by which the pull operates on the screw. A material improvement for regulating or varying the power has been introduced, by elongating the hole in the coupling bar E, in the head D, and then by a screw making the coupling bar longer or shorter.

Fig. 2.—*The Screw.*

Fig. 3.—*The Nut, in Section.*

Fig. 2 is the screw, of which A is the thread. B, the top, is hexagonal, or what mechanics understand by six square, and is fitted into the screw head, Fig. 1. The piece shown at C forms, what is generally called, the toe of the spindle; it is here a centre of cast-steel, and somewhat rounded at its lower end; it is repeated in the figure, to show the pin by which it is inserted in the screw, and the shoulder formed by the pin with the lower part. This contrivance affords a ready method of adjusting the pull of the press; a thin metal collar or washer being dropped over the projecting pin on the shoulder, will evidently alter the pressure in proportion to its thickness; thus, a collar of 1-16th of an inch in thickness is found equal to one blanket, and somewhat more.

The screw works by its thread in the piece seen at fig. 3. This is called the box, which being fixed in the upper part of the press, performs the office of the head in the old press.

The screw and box made with the presses are cast-iron: and as soon as they break, which it is pretty certain they will, I have them replaced by a wrought-iron screw and bell-metal box.

The lower end of the screw passes into a hollow cup, at the bottom of which is a steel centre, with a flat face, on which the screw bears by the pin C, in fig. 2.

Fig. 4.—*The Cup and Piston.*

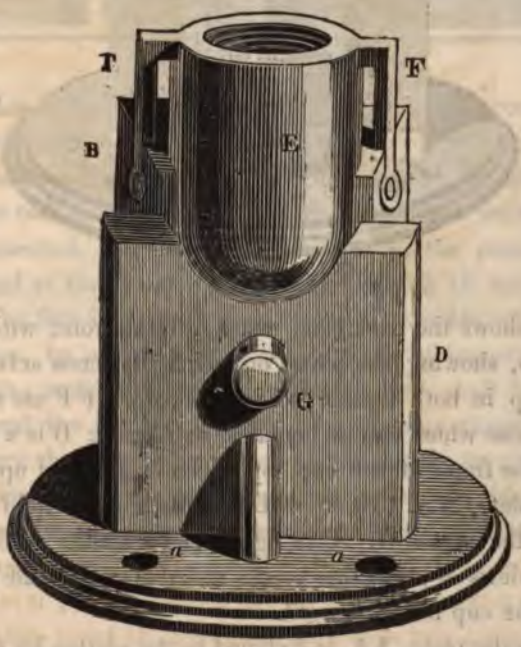


Fig. 5.—*Section of the same.*

Fig. 4 shows the back side, and fig. 5 the front, with a section of the cup, showing the centre on which the screw acts. Thus E is the cup in both figures; G is the centre; F F are steel loops, for a purpose which will be hereafter explained; B is a solid piece forming the frame of the cup, by which it is placed upright on a circular plate, A A. In fig. 4 D is a back plate, held to the cup piece by the screw G. C in fig. 5, and a similar piece in fig. 4, are front views of projecting pieces called stays, for the purpose of holding the cup firmly upright.

The circular plate, A A, is fastened to the platten by four screws at the holes *a a*, seen in both figures.

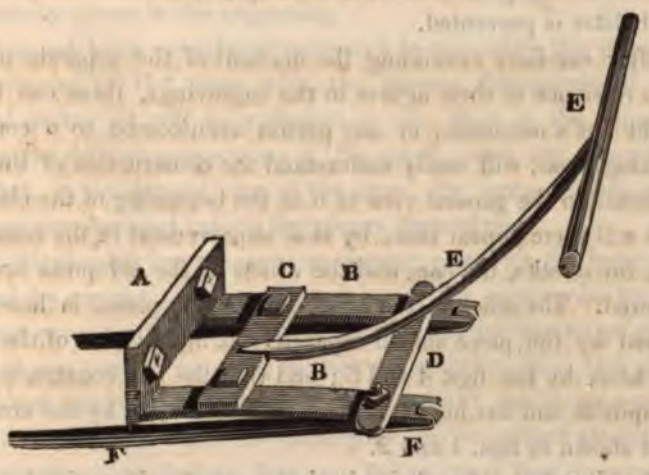
Fig. 6.—*The Platten.*

The platten is entirely of cast-iron; the circle, A A, corresponds with the bottom plate, A A, in figs. 4 and 5, and the holes seen in the four corner pieces within this circle, receive the screws by which these two pieces are held together. It is cast with cells, as above represented, to give it strength to resist the power of the pressure, and at the same time to relieve it from all unnecessary weight. The face is turned to, as nearly as possible, a perfectly plane surface, by means of a lathe and tools of immense power and strength; and if the purpose in this respect shall have been fully acquired, the platten and table become proportionably valuable, as every thing that is perfect and beautiful in typography depends upon an even impression, which can only be given by an upper and under surface held perfectly parallel to each other while the force is applied.

Fig. 7.—The Fork and Hook.

This is an apparatus which is attached to the hinder part of the press by the ears seen at A A. The extremities of the fork are steel on their upper sides, and pass into the steel loops, F F, before spoken of in fig. 5, by which the whole is suspended. On the straight bar, B, moves a sliding piece, C, which is provided with a hook, and bears an iron weight of about ¾ cwt. This forms the counterbalance to the platten, and at the return of the bar lifts the platten from the forme. The power of this counterbalance is, of course, variable at pleasure, by altering its distance on the bar; it is held at the required point by a tightening screw, which passes through the upper side of the sliding piece.

Fig. 8.—*The Gallows,*



in which the frame, A B B, is screwed to the front of the carriage, between the joints of the tympan. C, is a flat bar, which is fastened across the piece, B B, and from which proceeds the curved rod, E E, having a cross piece at its upper extremity. D, is a coupling which holds fast the ends of the straps; the straps themselves are seen at F F; they pass, as usual, beneath the carriage ribs, and round a double wheel fixed on a spit, and so to a framework somewhat similar, at the other end of the press.

The method here proposed for fixing the gallows is most inconvenient, and even dangerous. When the carriage is run in to the position for the pull, the hither end of the cross-piece E, is in the exact situation to strike the ribs or breast of the man as he throws his arm and inclines his body to catch hold of the handle of the bar or lever. I have all this taken off, and fixed to the cross-bar that unites the ends of the slides, which gives the opportunity of adding another material improvement to the press. To all presses it has been found necessary to have bolsters, as well to check the impetus in running out the carriage, as to prevent it from running in by the recoil, or from the beating; instead of which bolsters, I have a little catch fixed on the sides of the outer tympan, which, upon throwing up the tympan, catches upon this cross-piece, and, being hollowed out to its shape, instantly holds so fast that, while the tympans are up no force or beating can run in the press: but

the moment the man puts the frisket and tympan in motion they become disengaged, and the effort required to start the press off the bolster is prevented.

After carefully examining the account of the separate pieces, with reference to their figures in the engravings, there can be no doubt but a mechanic, or any person accustomed to a common printing press, will easily understand the construction of this, by reference to the general view of it at the beginning of the chapter.

It will there appear that, by this improvement in the construction, the cheeks, the cap, and the winter of the old press are not required. The office of the head, in the old press, is here performed by the piece shown separately at fig. 3; that of the shelf and hose, by the figs. 4 and 5; and that the old construction of the spindle and bar handle is here improved upon by the arrangement shown in figs. 1 and 2.

The platten, at fig. 6, is, in this press, fixed to the hose, or apparatus through which the screw works; and it will also be seen that it is suspended to the short arm of a lever, provided with acounter balancing weight, by which the forme is released from the platten at the return of the bar, after the pull.

For the plank, coffin, and stone, is substituted a cast-iron plank or table, which has its upper surface made accurately flat, by the same machinery as the platten, and is laid correctly horizontal. The under surface is cast with hollow places, or cells, in the same manner, and for the same purpose as the platten, but, in addition, has two horizontal parallel projections to answer the purpose of the cramps, upon which it runs in the slides. This, with the provision made for a perpendicular pressure on the platten, and the care taken to set its lower face parallel to the surface of the table, is the only means towards ensuring an uniform pressure on the forme.

The apparatus which takes the place of the old forestay, sufficiently explains itself in the engraving.

The slides which receive the table, and answer to the carriage and ribs, will be also equally obvious.

The ink-block is here a block of the usual thickness, with a ledge of sheet iron, and is supported by a light frame-work of iron rods. The balls are held by a projecting fork.

The tympans, &c. are as usual, except that some prefer them

made entirely of iron, and the whole press is firmly set and screwed on a massy block of wood, of the form and relative dimensions shown in the engraving.

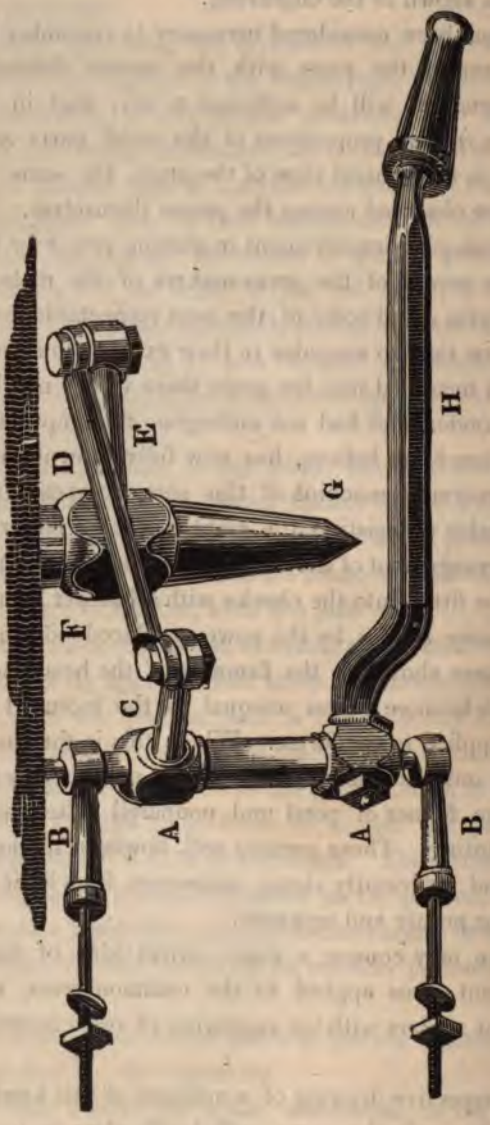
It has not been considered necessary to encumber this descriptive account of the press with the minute dimensions of the several parts. It will be sufficient to say, that in the separate figures the relative proportions of the small parts are observed; and that, in the general view of the press, the same relative proportions are observed among the pieces themselves.

The Stanhopian improvement in gaining power for the lever was applied by several of the press-makers of the metropolis to the common press; and some of the most respectable master-printers were at one time so sanguine in their expectations from this plan, that it was imagined in a few years there would not be a common press in London that had not undergone this important alteration. But experience, we believe, has now fully shown how impossible it is to construct a machine of this sort, composed principally of wood, capable of resisting the great increased power produced by the new arrangement of the bar and spindle. The head and winter, let them be fitted into the cheeks with whatever firmness, will be affected more or less by the power produced—or, in other words, the resistance above, or the firmness of the head and winter, will turn out to be more or less unequal to the intended force of the pressure applied to the forme. Where this is the case, both that sharpness and smoothness of impression produced by the Stanhope press, from formes of pearl and nonpareil letter, are here completely wanting. These presses will, however, no doubt, bring off a clear and sufficiently strong impression from light formes set in leaded long primer and upwards.

That we may convey a more correct idea of the Stanhopian improvement, thus applied to the common press, we shall here present our readers with an engraving of one constructed on this principle.

In a perspective drawing of a machine of this kind, it is impossible to show all the parts sufficiently clear to impart a perfect knowledge of its construction; we shall therefore give sketches, with the dimensions of those parts which differ from the common press, and those which are intended to produce the same effect as the Stanhope press.

Perspective enlarged of the Bar-handle and Lever



The upright pillar, A A, is 0 : 9 long, and 0 : 2 diameter.

The projecting pillars which support the upright, A A, are 6 inches long to the shoulder, and are furnished with nuts and screws fixing through the cheek of the press.

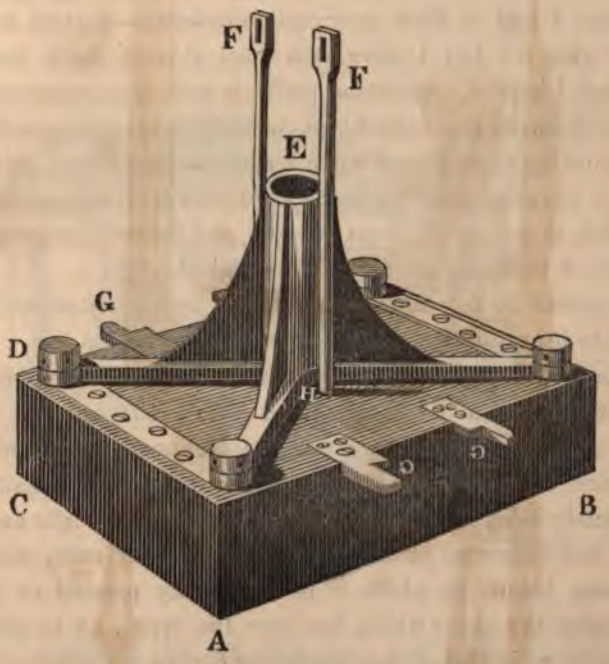
The lever, C, is 4 inches, D, 12 inches, and E, 6 inches long.

The spindle, F G, is 9 inches from the under side of the head at F, to the toe at G.

The bar-handle, H, is 2 : 2 long.

A bar extends between the press cheeks, for the support of the lever and weight.

The Platten.



The length, or A B, is 2 : 3; A C, 1 : 7; C D, 0 : 4.

Height of the cylinder, E, the top of which receives the toe of the spindle, is from E to H, 7 inches.

F F are iron rods, with an eye at the upper end of each, which receive the hooks, C C, of a lever, by which the weight of the platten is counterpoised.

G G are projecting pieces, set at a distance apart equal to the thickness of the cheeks, which, by being exactly fitted to the sides, and the inner face of the cheeks, steady the motion of the platten.

THE RUTHVEN PRESS.

ANOTHER printing press of acknowledged merit, called, from the name of its inventor, "The Ruthven Press," has been some time in use in various offices in England, Scotland, and Ireland, Russia and America. Mr. Ruthven was a printer in Edinburgh, and, from his practical experience in what are the requisites of a good press, may be reasonably supposed very competent to devise improvements. I have not the advantage in describing this machine that I had in those previously mentioned—that of having worked with it: but I have seen them at work, have handled them, and, I believe, understand perfectly well their construction.

In the Ruthven-press the forme, instead of being situated on a running carriage, is placed upon a stationary platform, or table, which is provided with the usual apparatus of tympans, frisket, points, &c. to receive the sheet of paper, and convey it to its proper situation on the forme after it has been inked.

The platten is moveable on wheels or rollers connected with springs to bear it up while bringing over the tympans.

The machinery by which the power for the pressure is obtained, is a combination of levers, actuated by a crank or short lever, turned by a longer lever, to which the pressman applies his left hand, and the weight of his body; the other parts are situated immediately below the table, and the platten is brought over the forme, and connected at the two opposite sides or ends, with the machinery below, by which it is so forcibly pressed or drawn down upon the paper which lies over the types, as to give the impression, which being thus made, the platten is disengaged, and removed from off the types by a motion of the foot or hand.

The levers beneath the table are well contrived to have the best effect in saving time, and producing an immense pressure; for when the pressman first takes the handle, it acts with but little advantage as to power upon the levers, and therefore brings the platten down very quickly upon the tympan. The levers have then assumed positions in which they exert a more powerful action upon each other; and this action continues to increase until one of the levers and its connecting rod come nearly into a line, when the power is greatly increased, and

capable of producing any requisite pressure. By this construction of a press is avoided the moving of the heavy carriage with the forme; for the platten needs be but a small portion of the weight of the loaded carriage; and further, it may be moved from off the types sideways, and therefore has a less distance to move than the carriage in the ordinary press.

The engraving (by Mr. Branston) will afford a very accurate idea of the action of this press.

Mr. Medhurst, of Denmark-street, Soho, produced a printing press of considerable merit, from its simplicity, having the same advantage, in point of power, as lord Stanhope gains by the compound levers. It is a common press in all its parts, but instead of a screw, a plain spindle is employed: on the lower part of it, just above the lever, a circular plate is fixed, and affords steps for the points of two iron rods, which extend up to the head, and are there supported by their points entering sockets. When the platten is up, these rods stand in an inclined position, although both the ends of them are at the same distance from the centre of the spindle; but when the spindle is turned by the bar, the circular plate, in which the lower points of the iron rods rest, turns round in a circle, and the upper ends remaining stationary, they of course come towards a vertical position, in which motion the spindle and platten are forced to descend, in the same manner as though a screw was employed; but this motion has every advantage of the Stanhope levers, or Mr. Roworth's press, without the friction of either, for the power increases as the resistance increases, and when the rods come nearly parallel to the spindle, or into a vertical position, the power is immensely great.

A plan for the improvement of the printing-press, by Mr. Joseph Ridley, was, in 1795, rewarded by the Society for the Encouragement of Arts, with a premium of forty guineas, the model of which may be seen in their Repository; and, in their thirteenth volume, a plate and description of the same. In this press the chief improvement was the action attached to the head, from which a screw, hitherto in use, is proposed to be taken away; and a perpendicular bar of steel, with a conical end lodged in a cup on the platten, substituted in its stead. The power is obtained by means of a spindle through each side of the press, near the bar, to which it is attached by three chains, the two outer ones serving to pull down the bar and platten, and the middle one to raise, or recover them again. To one end of this spindle is fixed a lever or handle, two feet long, which, by means of two chains, pulls down the platten with any force required. At the other end of the spindle is also another lever with a weight, acting as a fly, which weight may be fixed, by means of holes in the lever, at such a

distance from the centre as may be judged necessary, according to the nature of the work to be done. No work with this press requires more than one pull.

In 1796, Mr. PROSSER, of St. Giles's, took out a patent "for a machine for printing of letter-press," the only novelties in which are springs or regulators above the head and below the winter, for regulating the pull, thus making bad worse, as described in p. 416.

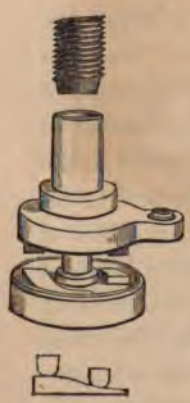
In June, 1807, Mr. BROWN, a stationer, took out a patent for a press; but as it never, I believe, got into action, there is no necessity for my describing it. The curious inquirer will find a description of it in the "Repertory of Arts," Vol. xiv, second series, p. 368.

Mr. DE HEINE took out a patent for a letter-press, which has merged into that of Mr. Cogger.

MR. COGGER'S PRESS.

THIS press differs very essentially in the principle by which the power is obtained for the impression upon the forme, from the Stanhope press; and from its general form, and the arrangement of its component parts, is evidently secured from the misfortune of breaking in the main frame, as mentioned in the description of the staple of the Stanhope press. The *cheeks* (it will be best to describe these things in technical terms) of this press are pillars of wrought-iron, calculated to resist a power of above a hundred tons; they draw into the block, or stand (which is of cast-iron), from the under part, having strong rivetted heads. On these pillars are then dropped tubes of cast iron; then the bed, or *winter;* then brass tubes; then the plates upon which the levers find a

fulcrum, with smaller tubes; then the *head;* all of which are ultimately held immoveable in their places by large nuts at the top. These tubes keep every part of the machine in its proper position. The cross head is calculated, from its massive strength, to afford effectual resistance to any effort possible for the power of man to give under it, and as the power is gained in the works below this head, there is no diminution of its strength by the working of the main power within its substance, as in the head of the Stanhope press. The only perforations are, 1st, for a screw to regulate the force of the under works, against which they act as a pivot; and 2nd, two small piston rods attached to the platten below, and spiral springs above to counteract the weight of the platten. The power is acquired by the multiplied cross-arm lever, drawing about one quarter round a collar, into which are fitted two studs of case-hardened iron with convex faces, which, when put in motion by the lever, move up inclined planes of unequal degree of inclination, so that when the platten is first put into the descending motion towards the forme, and power is less requisite than velocity, the latter is very rapid; but as the platten arrives towards the point of pressure, the velocity is diminished to increase the power, till arriving nearly on a plane, the power is almost infinite, and stationary till the bar is suffered to return. These inclined planes are fixed by dove-tail mortises in a brass turned box resting on the centre of the platten; this box contains the oil into which the upper studs dip on every return. The following engravings will clearly show the whole of this arrangement.



The frontispiece to this work will show the appearance of Mr. Cogger's press to be that of strength and elegance united. I have worked them for some years, even to the extent of power required for printing double demy, and have never found the slightest repair necessary; if the power should lessen through the wear of the sectors, or inclined planes, and the studs, it can be instantly regained by the regulating screw in the head, and if, at the worst, worn completely down, or broken, new ones can be fixed in the dovetail-mortises in a very short space of time: the most valuable peculiarity in this press yet remains to be noticed in respect to regulating the power—*it can in no ways affect the distance of the platten from the tympans,* whether regulated for a light or a heavy pull, *the distance of the two parallel surfaces is always the same;* the turning of the regulating screw in the head forces the studs lower down into the cup, and, consequently, in travelling up the inclined planes, they must force the platten lower down towards the forme, and the contrary for a light pull. These presses are made with projections from the tympan, which, stopping against the ends of the table when it is thrown up, supply the place of the gallows: on the off-side is fixed a weight which acts as a counterbalance to the weight of the tympans.

THE COLUMBIAN PRESS.

The press thus called was brought over to this country in 1818, by Mr. George Clymer, of Philadelphia, and made the subject

of a patent. If the merits of a machine were to be appreciated wholly by its ornamental appearance, certainly no other press could enter into competition with "The Columbian." No British-made machinery was ever so lavishly embellished. We have a somewhat highly-sounding title to begin with; and then, which way soever our eyes are turned, from head to foot, or foot to head, some extraordinary features present themselves—on each pillar of the staple a caduceus of the universal messenger, Hermes—alligators, and other draconic serpents, emblematize, on the levers, the power of wisdom—then, for *the balance of power* (we rude barbarians of the old world make mere cast-iron *lumps* serve to inforce our notions of the *balance of power)* we see, surmounting the Columbian press, the American eagle with extended wings, and grasping in his talons Jove's thunderbolts, combined with the olive-branch of Peace, and cornucopia of Plenty, all handsomely bronzed and gilt, *resisting and bearing down* ALL OTHER POWER!

To be serious:—the testimonials published in favour of this press are certainly of the most respectable character, and the private information which has been given me by clever workmen, who, after all, are, not unfrequently, better judges than their masters in these matters, impresses upon my mind very favourable ideas of its capability to produce fine and good work; in fact, the only objection I ever heard made to the press was, the long stretch required to be made by the workman to reach the bar-handle, but I have just seen one making with an improvement to obviate this difficulty, namely, the bar being fixed to the near instead of the off-side.

Whether it be entirely original, as to principle, is a matter now to be considered. Some years ago a Mr. Moore invented and took out a patent for a press, the power of which was gained by the fulcrum and lever, instead of the inclined plane or screw. I had one on a small scale (foolscap size) which was made by Mr. Arding for the late Mr. Rickaby some years after the expiration of Mr. Moore's patent, the power of which was gained by a wheel and chain, worked by the left hand, which drew down a strong lever projecting through the cheek of the press, having its fulcrum moveable (the pivot being fixed) upon the centre of the platten. The Columbian press I conceive to be upon the same principle; the lever being brought down upon the fulcrum (the platten) by a

combination of levers, with the right hand, instead of being brought down by the wheel and chain, equally a combined action of levers worked with the left hand.

Mr. Stafford, of Bingham, in Nottinghamshire, who is by profession a printer, stereotype-founder, common wood-press maker, Stanhope iron-press manufacturer, printer's smith, joiner, and furnisher in general (a very typographic Caleb Quotum), has invented and brought into use, for the supply of the trade, &c. in a very novel form, a portable iron printing-press, but chiefly confined to sizes not exceeding foolscap. The table for the forme in this press, as in the Ruthven and Treadwell, remains stationary. The tympans and platten are attached to each other; and when turned down, are acted upon by a lever, a screw, and hand-lever, to gain the requisite pressure. The contrivance is altogether very ingenious.*

It is not likely that presses of this construction will be made for any larger size than foolscap, on account of the great weight of the iron platten, which has to be turned up and down upon the same joints, and along with the tympans. The labour is, in some degree, counteracted by balance-weights, which are to be seen represented in the drawing; but the weight of the machine itself is necessarily thus increased: and if the tympans and platten chance to be thrown up quickly, a concussion will be produced such as would endanger the floors of many places used as printing-offices.

There is a rival claimant of this invention in Mr. Hope, of Jedburgh.—See *post*, p. 664.

* A representation of this press will be found on the leaf along with Mr. Rutt's machine.

A press to work by the labour of one man, with an apparatus to distribute ink on a roller of the elastic composition before described, and to cause that to ink the forme, all put in motion by the same power that impelled the action of the table and forme, was invented by Mr. Napier, two of which have been used by Messrs. Dean and Mundy. It was offered to the notice of the

profession by a circular, in which it was announced that "one man at this press would be more than equal to two at the common press; and as enabling printers in general to cope with larger machines." Its merits were submitted to the consideration of the Society of Arts, and referred, in course, to their committee of mechanics; but the examination of the press at work, and evidence given before this committee, by no means substantiated the assertions of the circular.

To effect its object, it was first necessary to do away with the frisket. In the next place, by the situation of the inking apparatus, the getting the forme on to the table was liable, in many cases, to serious accidents. It must be held in a horizontal position, and thus slid from the hind part underneath the tympans and machinery. The correction of revises, batters, cleaning of picks, unlocking to adjust the furniture, make register, &c. would, by the situation of the machinery, be rendered almost impossible, without taking the forme off the press. The time lost in making ready would be a serious evil, from two to two hours and a half being required upon every change of forme, from one description to another, as from 8vo to 12mo, &c.; for the composition on the inking roller required to be cut into compartments so as to be stripped off the cylinder to answer to the vacancies occasioned by the furniture, or any other part which was *not* to receive the colour; or, in other words, that no part of the composition was to remain upon the wood but what would exactly correspond with the line of the pages, lengthways. Thus every description of work, or of forme, must have a roller cut to suit it, the changing, cutting, and adjusting of which must occupy considerable time; and, with the least variety of business, eighteen or twenty cut rollers must be kept constantly ready. This alone would increase the expense of this necessary article tenfold. Another serious objection was, the difficulty of applying bearers, &c. from its being deficient of a frisket. Thus it was acknowledged that no open kind of work could be done by this machine to bear the character of fine work, overlays being the only means of adjustment, which would not prevent the unequal colour arising from various degrees of pressure.

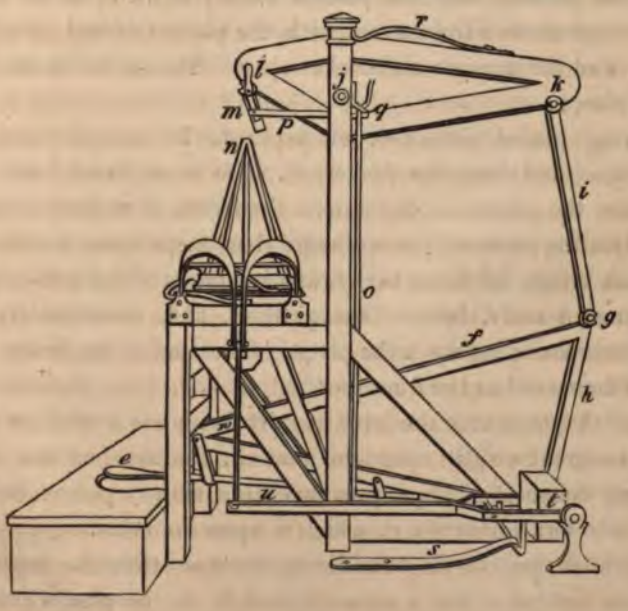
The table for carrying the forme ran upon friction-rollers in a frame, which also had a separate motion in the ribs, or slides. The mode of giving the pressure was by the inclined plane.

TREADWELL'S PRESS.

Mr. Daniel Treadwell, of the United States of America, came to England in 1820, and took out a patent for certain improvements in the construction of printing presses, which were manufactured by Mr. Napier. In this press, the power necessary for giving the impression is obtained by means of a lever, or treaddle,* worked by the foot, instead of horizontal levers, as applied to that purpose in the Stanhope and other printing presses. The table also in this press is fixed, as in the Ruthven, instead of sliding under the platten as usual, and the platten with the tympan and frisket turns over on the forme. There is besides a mode of reversing the frisket, which is made double (applicable to half-sheet work) so that the sheet may be printed on both sides without shifting.

As there is really some novelty in this press, I shall give engravings here to elucidate the description.

Fig. 1.



* Query, Did the name induce the invention, or the invention the name?

Fig. 2.

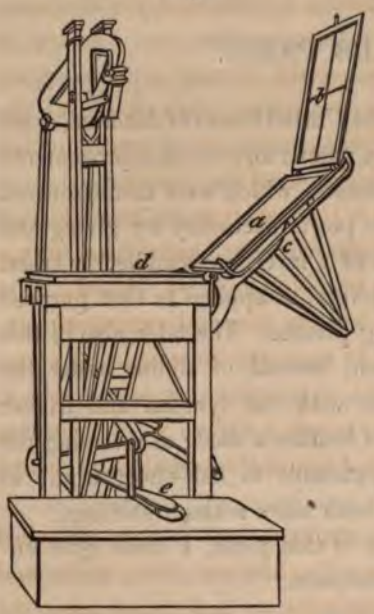


Fig. 3.

Fig. 1 represents a side view, with the tympan and frisket folded upon the platten, and the platten turned down upon the forme. Fig. 2 represents a front view, with the platten turned up off the forme, and the tympan and frisket open. The action of the press is as follows:

Having placed the sheet of paper to be printed upon the tympan, *a*, fold down the frisket, *b*, upon it as usual, and then turn over the platten, *c*, down upon the forme, *d*, as seen in fig. 1. To obtain the pressure, the workman then steps upon the treaddle, *e*, which brings down the bar, *f*, and by means of the knee-joint, *g*, the arms, *h* and *i*, become straightened, and, consequently, the main lever swinging upon the pivot, *j*, is raised at the hinder part, *k*, and depressed at the front part, *l*.

Thus the descent of the lever at *l*, by the means above described, throws a great weight upon the platten, for the purpose of imprinting the sheet of paper previously (as above) placed between it and the forme of types, *d*, which is upon the table.

By the descent of the treaddle the instant before the impression is given, another action is also obtained for the purpose of bringing the hammer, *m*, into a perpendicular direction, in order to meet the

block, *n*, where the legs of the platten all unite. The rod, *o*, attached at the bottom to the treaddle, *e*, communicates also near its top by a connecting bar, *p*, with the hammer, *m*. The top of the rod, *o*, is bent, and as it slides down through a guide, *q*, by the descent of the treaddle, the connecting bar, *p*, moves the hammer, *m*, from its inclined pendent position into a perpendicular, ready to press directly upon the block, *n*, of the platten.

When the foot of the workman is removed from the treaddle, *e*, it rises by the re-action of the compressed parts, aided by a spring, *r*; at the same time the hammer, *m*, shifts from the block, *n*, in order to allow the platten to rise, and the type to be inked afresh.

The platten and its arms being of considerable weight, a counterpoise, as it turns over, is effected by the spring, *s*, and weight, *t*, acting upon the frame, or lever, *u*, which by the rod, *w*, hanging upon the bent arms of the platten, balance its weight, and render its motion easy to the workman.

Fig. 3 represents the platten, tympan, and frisket, detached from the press, for the purpose of exhibiting their parts and actions more distinctly, as respects the method of reversing the sheet, without removing it from between the double frisket; *c* is the platten, upon the sides of which are two pivots; *x*, is a bar connected to two arms, *y y*, in which the double frisket is enabled to turn over upon centres; when the sheet is printed on one side, and the platten thrown open, the bar, *x*, is depressed by the right-hand, which raises the double frisket holding the sheet of paper, *z*; the left hand then instantly turns it over, and the sheet is, by another impression, perfected.

There is certainly great originality in the construction of this press: its operations are conducted with much facility by one man; and as the rolling of the table, and the horizontal movement of the bar, are dispensed with, the labour must be considerably reduced. The chief objection which struck me, on a view of it, was the room required behind the press, four or five feet more in width than any other press. This in the confined space, and value of house-room in London, would, in itself, be a sufficient objection where no greater advantages were to be obtained than even the inventor promises. I believe only one press of this construction has been made in England.

Mr. Richard Watts, in 1820, took out a patent for improvements in inking printing types with rollers, and in placing and conveying the paper; and giving the pressure by a cylinder.

This press is without any apparatus immediately answering to our tympans. The frisket is a frame or carriage which runs horizontally upon slides upon each side of the machine. To this carriage is attached two inking rollers, which traverse over the forme as the frisket is run in and out. When run in, one of these rollers comes in contact with the feeding roller, which lies at the other, or right-hand end of the machine. This roller, which is entirely of wood, receives the ink from an elastic roller, which is supplied by a metal roller revolving against the ink-trough. As it runs out, the two rollers first mentioned pass over the forme, and ink it ready for the next succeeding sheet. The pressure given is by a cylinder covered with a blanket and linen cloth tightly laced. The amount of impression appears to depend wholly upon the weight of the cylinder, since provision is made for increasing or diminishing the same by means of introducing or withdrawing blocks of metal, &c. The sheet of paper is placed upon the frame, say the frisket; and the carriage pushed forward horizontally over the forme, the paper being as yet prevented from touching the forme by slight springs which raise the frisket an inch above the table. A winch is now to be turned by the workman, which puts in motion an axle and band-wheels, and several guide-pulleys are passed by two endless bands, by which means the pressure cylinder is brought forward, and rolled over the paper and forme; and then, by a reversed motion of the winch, is returned to its place. The carriage with the frisket is now to be withdrawn, and the printed sheet removed, by which motion the inking rollers have been again made to pass over the forme, and to ink it ready for the next impression. As it is necessary that the rollers should continually receive fresh supplies of ink, this is effected by the following means, at the time that the impression-cylinder is passing over the types. A bevil-geer at the end of the axis which carries the band-wheels for the cylinder, causes the metal roller and the wooden roller to turn, by means of which the ink is distributed over the surface of the inking rollers, which are at the same time resting upon the feeding roller. But as the metal roller must always revolve the same way, it is necessary that the bevil-

geer should be changed when the axle and pressing cylinder are turned back again. This is effected by means of a forked lever, which causes the socket with the bevil wheels to slide along the axle, and thus brings the wheels alternately into geer, according to the direction in which the pressing cylinder is at that time moving.

For further description, and an engraving of Mr. Watts's press, I must refer my readers to the Lond. Journ. of Arts and Sciences, No. 10, p. 263, &c. and plate xii.

In 1822, Mr. Barclay, of Old Broad-street, took out a patent, "from a communication made to him by a certain foreigner residing abroad," for the invention of a Spiral Lever, or Rotatory Standard Press. This *invention* will be likely to prove to Mr. Barclay that it would be far better to study the inventions of our own country, than to place implicit reliance upon the pretensions of foreigners. What he calls the spiral levers, which draw up the platten, have been applied with far greater simplicity of connecting apparatus, than that which his patent press seems to have the benefit of, for some years past to Mr. Cogger's press, described in p. 654. As to the rollers, and the wedge, and the inclined planes, made to act by a compound horizontal lever, the same principle has been long applied by the makers just referred to, and also by Mr. Napier, in a far superior manner to that which he has adopted. Any printer, however, wishing to study this important foreign communication, will find it fully detailed, with a very clear engraving, in the Journal before named, for April 1822.

Mr. Hope, of Jedburgh, in Scotland, has a recent patent for an improvement to increase the power of a press, which appears to be rather an extension of the connecting-lever system of the Stanhope and Cogger presses, than an entire novelty. The irregular inclined plane is precisely upon Cogger's principle, and although drawn and described in Mr. Hope's specification, and made an essential part in the formation of his press, is yet disclaimed as his invention. The immediate object of his invention, or improvement, is to bring the mechanical power, or multi-

plied lever, of the presses above named, twice into action, where theirs is only once employed; this is effected by an additional forked lever, attached to the off-side of the iron standard, and another connecting rod, leading round the back of the press to the inclined planes; this would appear to give an increase of power of nearly a double ratio. The inclined planes (or as called in the Cogger press, the sectors), by the counter-action of which, against each other, the space between the fixed head of the press, and the moving platten becomes increased, and thus causing the pressure, are, in this Jedburgh press, of cast iron, from a rather complicated pattern; and thus, if any part was to yield, or break, the repair would be expensive and troublesome for want of the patterns to cast from; in Cogger's press the inclined planes are separate pieces of steel, or case-hardened iron, let into the head and cup, which bear and carry them, by a groove, so that in case of wear or accident they are easily replaced, without any derangement of the surrounding parts.

Messrs. Beilby and Knotts, of Birmingham, are the agents, in England, for the sale of this press. I do not know whether their agency has ever been effective in London, so I have no means, at this moment, of giving an opinion upon its merits in a printing-office: from its appearance in regard to finish of workmanship, in comparison with any of those I have before mentioned, or seen, I should have but little expectation of superiority of press-work; and as to increase of power, we have quite power and ease enough in our other presses to answer every purpose of printing. For further description and engraving, see Lond. Jour. of Arts & Sciences Aug. 1823. Mr. Hope also claims the invention of a small press similar to that described as Mr. Stafford's (see p. 657). Which has a right to the merit, I am unable to decide; but Mr. Stafford's was certainly the first which came to my knowledge.

The Printing Machines, and other Inventions relative to Printing, of Doctor WILLIAM CHURCH.

Among the many inventions which have been produced within the last twenty years for facility of printing, I have had great difficulty in assigning to each a degree of notice in some respect regulated by what I conceive their relative importance to the profession; but the inventions of doctor (and engineer) Church, are so gigantic in their pretensions, that to give any idea of their intended operations must occupy a space rather according with their extended nature than my conviction of their efficacy.

The London Journal of Arts and Sciences notices the "extraordinary association of mechanism, which embraces a more extensive range of invention than we remember ever to have seen before projected by any one individual, and combined under one patent." I cannot, however, agree with them in placing it, "not among the merely *curious* productions of art, but in the front rank of those valuable and useful inventions which adorn the present age."

The first series of Dr. Church's press inventions was known here in 1821. This promised nothing more than what might easily be believed as possible, with the usual abatement from the promises of new inventions: and has been found to answer in proportion. The impression is gained in a method differing from any of those hitherto described, by preserving the vertical movement of the horizontal plane, or platten, of the old, and Stanhopian presses, and having occasion for the regular well-skilled pressman. I shall extract a description from the Journal before mentioned, omitting the references to the plate, which will be found in vol. iii, p. 57, and plate iv. It may be as well, however, previously to state, that the object of this press, as to the saving of labour, is that one pressman alone shall perform the whole; he has only to lay the sheet on the tympan, and immediately apply his hand to the rounce, by the turning of which the forme is inked, the frisket and tympan turned down, the press run in, and the impression given: a reverse of motion reverses the process, and prepares for the next sheet. This press certainly turns out very

excellent work, at somewhat less expense than a Stanhope, or other press, but in its first cost is about double; and I do not find it possible to execute more than one fourth or, at most, one third more than those other presses worked by a man and a boy; consequently, no expedition is acquired without an additional number of machines, involving both capital and room; two matters equally serious in a London printing-office.

This invention consists of three parts: first, in the mode of obtaining the pressure; second, in a particular arrangement of the inking apparatus; third, in a mode of raising and lowering the frisket, and by the same operation, of removing the paper after printing.

The rounce is turned by means of a winch upon its axle; a bar of steel is connected by a hinge-joint to the bottom of the table. At the reverse end of this bar is a foot, or projection, to which the chain is attached, and passed round nearly the whole periphery of the rounce, and there secured; another chain, cord, or band, is fastened to the rounce at one end, and to the hinder part of the table at the other, by means of a rod passing through the back plate, where a worm-spring is applied for the purpose of relieving the strain of the chain or cord. Supposing the machine in the position of having just given the impression, in order to raise the platten from the table, the winch must be turned backwards, by which the foot of the bar (in contact with the periphery of the rounce) will be raised; and as the winch continues turning, the chain or cord in winding round the rounce will draw the table forward, at the same time the bar will pass over the rounce. As the table begins to advance, the platten (connected to it at the hinge-joint) is moved also, and this movement raises the platten in the following manner:

The pressing lever turns upon pivots in the heads of the pillars: this lever is connected to the platten, by means of a hinge-joint; so that as the platten, by the advance of the table, is pushed forward, the lower end of the lever raises it, and by swinging upon joints, is, when the table has arrived at the front of the standard, thrown up in an inclined position. The paper is at this time laid between the tympan and the frisket, when, by turning the winch forward (that is, in a contrary direction to the last described) the chain draws back the bar, which causes the table to return to its

situation, as first mentioned; the platten, at the same time, being turned over by means of its connection to the table at the hinge-joints, and is brought down, the lever hanging almost in a perpendicular direction.

The effective pressure commences when the foot of the bar acts against the periphery of the rounce, and is complete when the bar strikes upon the stop or wooden block; at which time the extended toe of the bar meeting the periphery of the rounce, has caused the bar to drive the table home; which, by means of its connection behind, brings the platten down to meet it, and the lever thus approaching nearer to the perpendicular, exerts all the resistance that its pivots and the pillar-heads are able to bear, and communicates that force through the joint to the platten, by which, the effective pinch is given to produce the impression of the types on the paper.

The inking apparatus is secured by screws and bolts upon two brackets on the opposite sides of the frame, the ductor is the same as commonly used, and which, as it is generally employed, deposits the ink upon a feeding roller, and that upon a distributing roller or surface. The principal improvements in this inking apparatus consist in a contrivance for the purpose of giving an alternating lateral motion to the distributing roller, in order to spread the ink equally upon the two inking rollers.

The raising and lowering of the frisket is effected by the following means. A convolute spring, similar to a watch-spring, is coiled round the axis, or joint, of the frisket and tympan, and by its power the frisket is thrown open; there is affixed to the frisket an excentric pulley, and another affixed to the joint connecting the platten and table: from these two excentric fixed pulleys a cord is extended and fastened, so that, as the platten begins to turn over, the cord brings down the frisket on to the tympan and confines the sheet of paper.

A contrivance is provided for lifting the sheet off the tympan, after being printed, by the rising of the frisket; a tongue is placed at the top of the frisket, which is held fast by a spring behind falling into a notch. When the frisket is shut down, the point of the tongue slips into a small groove in a piece screwed on to the tympan, and passes about an inch under the sheet of paper, so that when the frisket is thrown up again, the tongue pulls the

sheet off from the tympan, and on the frisket striking against a pin fixed to a rest, the tongue will be again forced out.

Thus far Dr. Church's invention has been brought into partial practice; whether his subsequent inventions (or intentions), to which I alluded at the outset of this article, have any chance of being equally successful, I have now to discuss.

The principal object in view is, to print constantly from new type, which is proposed to be effected by simplifying the processes of casting, composing, and distributing. The type is to be delivered perfect by machinery, and laid, as it is cast, with unerring order and exactness, in separate compartments. The compositor's work is then to be effected by other apparatus directed by keys like those of an organ: thus is the type to be arranged in words and lines, as quickly as in the performance of notes of music; to be all perfectly correct, as no error is allowed to be possible except from touching the wrong key: hence, an expert hand will leave but little business for the reader. The forme may be worked as usual, either by the printing-press or machine. It is then found less expensive, under Dr. Church's economical system of re-casting, to melt the type and re-cast it, than to perform the tedious operation of distribution. The melting takes place without exposure to the atmosphere, by which contrivance oxydation, and the consequent waste of metal are avoided. It is calculated that two men can produce 75,000 new types per hour; and, in re-composing, one man is to perform as much as three or four compositors. In the production of types, the saving, we are told, is ninety-nine parts in a hundred; and in the composition, distribution, and reading, three parts in four.

In regard to press-work, Dr. C. has invented a machine to work with plattens instead of cylinders, from which he will be able to take forty fine impressions per minute! Some London printers are said to have ordered these machines and apparatus!! An establishment is about to be commenced in New York, in which these inventions will be applied to the reprinting of popular works, and printing in general!!!

The foregoing account contains the substance of a notice, which appeared in the Monthly Magazine for June 1823.

I do not mean to question the possibility of constructing a machine capable of performing *some* parts of these various opera-

tions; or even *all* the parts, in a limited degree. I was at one time a sceptic as to the possibility of printing good work by cylindrical pressure, I have been convinced to the contrary; but will any one who has a practical knowledge of either of the businesses of letter-founding or printing, believe, for an instant, that the usual routine of a day, or of an hour, in either of those branches of typography, can be performed by any mechanical combinations which it is in the power of human hands to construct, without more attendants to wait upon the machinery than could execute ten times the work which it pretends to be able to do of itself. In the first place, would every proprietor or speculator, who purchased a machine, easily find an artist to supply ready-justified matrices and moulds (saying nothing about previous punch-cutting) for the type-casting part of the machine? if not, then would it end in a dangerous monopoly. Then, is it to be cast so wonderfully perfect as to want no breaker, rubber, dresser, &c. Are seventy-five thousand types, per hour, to be shot perfect from the crucible to the tubes? Well—suppose all this done —the *performer*, also perfect in his knowledge of the keys, and beginning to play his lesson—how long would he proceed with his tune without meeting with some unlucky hole in his ballad; without having to call for more performers to *play in concert?* one to help the instrument to space out its lines, set its heads (italic, I suppose, would be provided for by another row of keys and pipes to answer those of the swell organ); then another to set smaller type for notes; a word or two of Greek or Hebrew; or, perhaps, side notes to the work; to space out heads, gauge, and tye up the pages; to impose, correct, &c. &c. Why, to effect this saving of "three parts in four," of a compositor's labour, would take one key-player, two helpers, one reader, one engineer, and one artist, to keep such a machine in repair: and then if a simple key or tracker out of the hundred and fifty-three wanted for the boxes of a pair of cases, should get out of tune, the whole foundry and composing machinery must all be brought to a dead stop. I should also expect a stop of another kind in the progress of the printing machine; if I am at all capable of judging by description between similarity of cause and effect, Dr. Church will be obliged to wait the expiration of the term of another patent for a printing press, before he can venture to set his a-going.

Then, as to its speed: 40 printed sheets per minute, equal to 2,400 per hour; but it is not said, perfected sheets, or sheets printed on both sides; therefore, it will give 1,200 on one side, or white paper, and 1,200 re-iteration. Now, I will venture the assertion of impossibility of any one boy or man pointing 1,200 sheets in half an hour. It has, therefore, been fully anticipated in this respect by other machines which have been proved. But it would be unfair to suppress my opinion, that if it could be brought to act with equal speed as a double or perfecting machine, it would have a great advantage in the *platten* pressure, over that of the cylindrical.

I shall again be indebted to my friend Mr. Newton, for extracts by which to give some idea of these projects, but I must refer my reader to the numbers for November and December, 1823, for a full description and plates, before they can thoroughly understand Dr. Church's *intention*.

This apparatus consists of three pieces of mechanism; the first of which is designed to cast the types, and to arrange them ready for the compositor; the second is to compose those types into words and sentences, by the operation before described; and the third, a press to produce printed impressions from the composition, in the most perfect manner, and with unexampled celerity.

The mechanism designed for casting the types is, first, an elongated box or chest, extending across the machine, which holds the melted type-metal previous to its being admitted into the moulds. In front of this chest the mould for casting the types is placed. The mould is formed by a steel bar extending across the machine. In this bar any number of perpendicular grooves are cut, for the purpose of receiving the fluid metal, for forming the bodies of the types or letters distinct from each other. Below this mould-bar the matrices are stationed, which give the letter or face of the type; and the placing and displacing of these matrices and the mould-bar, to perfect the operation of casting, which must be done with great accuracy, are the most important points which the varied motions of the mechanist have to effect; attached to the machine is a vessel called the fountain, to be filled with melted metal, from whence it flows into the metal-chest above-mentioned. In one of the operations of the machinery (the progressive motion of which will be explained), a plunger is made to descend into the metal-

chest, and to displace a portion of the metal therein, which, being prevented from returning into the fountain, rushes with considerable force through small apertures into the respective grooves of the mould-bar and into the matrices, thereby causing a certain number of types to be cast.

The general operation of the machine is as follows: a fly-wheel is actuated by hand, which gives motion to the shaft. Upon this shaft a cam-wheel is fixed, and consequently turns with it. An elevated cam upon the periphery of this wheel, is to be placed under the end of a lever, previous to the commencement of the operation, by which the plunger is held up. As soon as the wheel has revolved sufficiently to slide the cam from under the end of the lever, the plunger is instantly drawn down by a weight suspended to the lever, in which descent of the plunger the fluid metal is forcibly injected through the jets of the metal-chest before-mentioned, into the moulds and matrices by which the types are cast. When the wheel has revolved some distance further, an enlarged part of its periphery comes in contact with the end of the lever and raises it. At the reverse end of the shaft, which carries this lever, there is a short arm, which at this time shifts the mould-bar laterally, and brings the grooves of the mould holding the body of the types, exactly under a series of punches extending from the bar. In this state of the operation it becomes necessary to unlock the matrix-bar, which is done by the progress of the wheel having brought a cam on the inside of the wheel to bear against the end of a lever, the reverse end of which lever slides back a bar holding a series of wedges, and thereby permits the matrix-bar to descend about the eighth of an inch, so as to withdraw the ends of the cast types from these matrices.

The further progress of the wheel causes a cam to strike against the upper end of the lever, the reverse end of which draws forward the matrix-bar from under the types. The types are now to be discharged from the moulds, which is done by the cam (as the wheel proceeds) coming against the end of the lever. This is a compound lever, the shaft to which it is affixed carrying also, at its reverse end, another arm. As this arm recedes, by the pressure of the cam, the first arm forces down the bar with its punches, which project the types out of the mould-bar, and cause them to descend into other guides or square tubes formed to the figure of the types,

which slide down them; but in order to arrange the types all in the same direction, and deposit them in files or ranks in a box, the guides are twisted one quarter round, which brings the body of each type into that position required for placing them in the composing machine, to be explained hereafter. After the types have descended in the guides, they are severally pushed backward into the ranges of the box, by means of a pair of guide cams, upon the shaft of the fly-wheel, between which cams the end of the lever acts; and by the obliquity of the cams the lever is made to vibrate and slide the type-projector bar backward and forward, so that at every operation of the machine the types are pushed backward in ranges of the box, each type preserving its erect position.

The cam having passed the end of the lever, the weight attached to the lever causes the punch-bar and punches to rise out of the moulds and resume their former position. The cam now comes in contact with the lower end of the lever, and pushes it back, which causes the matrix-bar to resume its former place beneath the mould-bar, and the locking-up of the matrix-bar is effected by the cam coming in contact with the end of the lever which pushes back the wedges to their original situation. The next motion of the mechanism, as the wheel continues its revolution, is the sliding of the mould-bar into its former position, which is done by the friction-roller at the end of the lever, descending from the elevated part of the periphery of the wheel, which shifts the mould-bar back, and places the grooves for the moulds over the matrices, as before. The cam-wheel having performed one entire revolution, the cam is again brought under the end of the lever which raises the plunger, and another operation of casting at this point commences, and proceeds as described.

The construction of the mould-bar is considered by the patentee to be a very important feature of the invention; it has a channel, with many turnings, cut through it for the passage of cold water, in order to cool the type-metal as quickly as possible after casting: this water is conveyed to the mould-bar by a pipe leading from a reservoir placed in a convenient situation, which water may be discharged at an aperture, and conveyed away by a pipe.

There are several simplified modifications of this apparatus, to be worked by hand, divested of the fly-wheel and most of the levers; but these are not calculated to perform the business with

equal facility, or to produce so great a number of types at one operation.

The second part of this series of apparatus for printing, is the machine by which the types are to be composed, that is, selected and associated together into words and sentences. Having disposed and arranged the several sorts of types into narrow boxes, or slips, each individual slip containing a great number of types of the same letter, which is called a file of letters, the cases with these types are placed in the upper part of the composing machine: there are a number of jacks, to each of which a key is connected in a manner somewhat similar to the jack and keys of a harpsichord or piano-forte. There are four rows of keys, which are so disposed for the convenience of gaining space, in order that any one of them may be touched by the finger, and a plate with a number of slits corresponding to the keys, through which slits the heads of the jacks pass. There are precisely the same numbers of files or letters that there are jacks, each file standing exactly over the head of its jack in front of it.

Any one of the keys being pressed upon by the finger will cause the upper part of the jack to advance, and push forward the lower type of the file against which it stood on to the front part of the plate. By the descent of the key a bar extending along the front of the machine, and its arms, will be pressed down, which raises a lever. The end of this lever enters a snail-groove in a snail-wheel, connected by a train to a barrel containing a spring, intended to act as a clock-movement to give motion to the arms in front. The lever acts as a trigger, which lets off the clock-movement every time that a key is depressed, and by the end of the lever working in the snail-groove of the wheel above-mentioned, that wheel revolves only once round upon the descent of each key, being stopped by the trigger at the end of the snail-groove; consequently the movement is not continuous but intermitting, and can only start when the trigger is raised through an aperture from the larger to the smaller radius of the snail-groove.

The nature of clock-movements being well understood, it is only necessary to say that every revolution of the snail-wheel raises and depresses the connecting rod by means of the crank upon its axle; this causes the shaft, which also carries the collecting arms, to vibrate, and thus every revolution of the snail-wheel gives a pen-

dulous motion to the lower ends of the collecting arms, and brings the collectors together. It will now be seen that at the instant after the jack has pushed an individual type out of its file on to the front part of the plate, the collecting arms are actuated by the clock-movement, and by means of the collectors, slide the type from whatever part of the plate it may be situate to the centre. At this precise moment of the operation the larger radius of the snail-wheel will be uppermost, and its periphery acting against a friction-roller at the bottom of the rod, will raise that rod, and thereby depress the longer arm, or front part of the lever connected to it, by which means the type brought to the middle of the plate will be pushed down through an aperture in the plate into the curved channel, which answers the purpose of a composing stick, where the types collect as the operation of the machine composes them into words or sentences, and from whence they may be taken and adjusted into lines by hand, or formed into pages, by means of a box, which may be placed on the side of the machine at the end of the channel.

A mode of adjusting a slight metallic bar on the plate, for the purpose of pressing upon, and preserving the position of the type as it slides along the plate, is suggested; it is to be raised up from the plate, or pressed down upon the type by the operation of the levers, which are worked by connecting rods, extending from the arms, and consequently acting by the depression of the keys; and the winding up of the clock-work is intended to be effected by a treaddle, to which a rope may be attached, extending from a pulley on the axle of the spring-barrel.

The third part of the apparatus is a machine for taking off the impressions of the types on to the sheets,* by a table to receive the forme of types; a platten, firmly fixed and supported by the standards and frame-work; inking-rollers; and friskets.

The machinery is put in motion by means of a handle and fly-wheel, upon the axle of which are pullies, from whence cords coiled

* According to the arrangement which I laid down in commencing the chapter on printing machinery, this description of Dr. Church's machine would, in proper order, follow as the last in the chapter succeeding the present; but I have thought it better to give up that plan in this instance, in order to keep Dr. Church's inventions, as having a connection with each other, under one view.

in opposite directions, pass to a pulley, and from which an endless chain extends to a pulley at the reverse end of the machine. This endless chain is attached to the frame of the inking-rollers which are drawn backward and forward over the table and forme of types by the endless chain actuated by alternating revolutions of the pullies. Upon the axle of these pullies there is a peculiarly-formed endless screw, with a cross thread, into which a tooth works on the under side, and by that means causes the screw to slide backward and forward in a lateral direction, which locks ultimately into one of the pullies, and thereby effects the direct or retrograde movement of the inking-roller. The supply of ink is taken up from the ductor at every return of the rollers, and the uniform spreading of the ink upon their peripheries is produced by the distributing table, which has a lateral sliding motion.

The operation of printing begins thus: the fly-wheel having caused the inking-rollers to pass over the distributing table, and over the forme of types, so as to ink them in the manner above described, the roller-frame when near the end of its race strikes against a slider, which instantly brings forward with an accelerated velocity the frisket carrying the sheet of paper. This stops in the centre of the machine, over the table and forme, and under the platten, where it remains stationary, ready to receive the pinch of the press, in the manner about to be described.

The table carrying the forme, and balanced by an arm and weight, is made to rise and fall by means of jointed pieces, and is guided by the cylindrical sliders working in sockets. The fly-wheel, in a certain part of its revolution, strikes a small lever, which locks the cam to the shaft of the fly-wheel, and causes the cam to pass round with it. The longer diameter of this cam, now pressing against the jointed pieces, brings them almost into a perpendicular position, by which effort to straighten the joint, the table is raised up with great power against the under side of the platten, and the impression given from the forme of types to the sheet of paper. By the further rotation of the cam, the jointed pieces fall back to their former position, and the table descends.

In order to take off the sheet after it has been printed, one of the chaps of a pair of broad nippers is introduced under the edge of the paper, in the following manner. The wheels are made to revolve, by means of cords coiled round them, and which are ac-

tuated by a pulley, when the roller-frame advances: by these cords the nippers are carried, and, previous to the impression which has been given to the sheet as above, they are brought into a situation ready to take hold of the edges of the paper, and this is done by the table and platten pressing them together at the time the impression is given. As the roller-frame returns to ink the forme, the nippers draw off the sheet, and by pressing against an inclined plane, the chaps open, and deposit it upon the heap, from whence any number of the sheets may be removed by hand.

The inking-rollers having, on their return, passed over the face of the types, and inked them ready for another impression, and the frisket having by that means been withdrawn, the second sheet of paper is placed upon the frisket, which is brought over the table, and under the platten, by the further progress of the inking-frame exactly as above described; at this time the reverse end of the nippers, with their chaps open, are brought into a situation ready to clasp the edge of the sheet now upon the table. The revolution of the fly-wheel produces the impression as before, and the drawing off the sheet on to the heap is performed in a similar manner. Thus the machine is calculated to print alternately sheets laid on at either end, and to deliver them on to the heap above the platten.

The velocity with which the operation of printing may be performed by this apparatus is stated to be about forty sheets per minute.

In order to produce a correct register, points are fixed to the friskets, in a similar manner to the register points in ordinary printing. These points advance with the friskets under the platten, and enter small holes in the tympan when pressed. On the under side of the friskets, there are small wedge-formed pieces which drop into corresponding recesses in the table, by which means the friskets are compelled always to settle in one particular part of the table, and by that means a perfect coincidence of register is effected.

To prevent the press from closing by the too rapid velocity of the fly-wheel, before the pressman has accurately placed his sheet, there is a contrivance attached to the fly-wheel for throwing the mechanism out of geer. This is effected by means of a pendant rod hanging against the side of the upper rail, which is attached

to a short lever, or catch, that drops into one of several notches, or a ratchet on the axle of the fly-wheel. The pressman has, therefore, to touch the pendant rod when he has adjusted his sheet, which immediately connects the mechanism to the motion of the fly-wheel, but until that is done, the wheel revolves without moving the other parts of the mechanism.

In order that the forme of types may be conveniently placed upon the table, previous to commencing the operation, the platten is made to slide from over the table, and, on being re-placed, is fixed by the head-screws firmly to the standard pillars.

Another modification of this apparatus is proposed, in which the pressure is given by drawing the platten down, instead of raising the table up, which has some similarity to the printing press invented by the same patentee, and previously described.

After the forme of types have been used, and the desired number of impressions taken, instead of distributing the types in the ordinary way, they are to be put into the melting-pot, and re-cast by the apparatus first described, by which all the types of one letter will be ranged in files, as before described, and placed ready to be operated upon by the composing machine.

But surely this, wonderful as it may seem, is far exceeded by the proposed application of machinery to the work of the head as well as of the hands ?—See what follows !

MACHINE FOR CALCULATING AS WELL AS PRINTING.

Charles Babbage, Esq. F.R.S. London and Edinburgh, &c. in a letter addressed to sir Humphry Davy, president of the Royal Society of London, has announced to the world, that he has invented various machines, by which some of the more complicated processes of arithmetical calculation may be performed with certainty and dispatch; and in order to avoid the errors which might be produced in copying and printing the numbers in the common way, the ingenious inventor states, that he has contrived means by which the machines shall take, from several boxes containing type, the numbers which they calculate, and place them

side by side; thus becoming at once a substitute for the computer and the compositor.

The scheme of Mr. Babbage is, however, much more within the scope of probability than that of Dr. Church. He does not go to the casting-type process—his authorship and composing go no further than the ten figures—and his object is, to effect accuracy where it is of great consequence, so that it may, perhaps, be of general benefit.

POUCHEE'S PATENT TYPE-CASTING.

In this place, as the patent was published too late for that part of the work immediately relative to type-founding, it may be appropriate to mention the machinery of M. Henry Didot, of Paris, made patent in this country by Mr. Louis John Pouchee, for casting type at the rate of 24,000 per hour. A trial was made of M. Didot's invention some years ago by Mr. H. Caslon, but it was not found eligible to pursue it: however, Mr. Pouchee has now taken it up, and therefore a short description shall be attempted, particularly as I see no absolute impossibility of so far effecting the object, after all preliminary arrangements of justifying the matrices are complete, as to cast 200,000 an hour, if desired; since Mr. Pouchee does not pretend to the wonderful perfection with Dr. Church, as to be able to shoot the type from the moulds into the composing-boxes all complete and perfect; but by a very few words, of large import, allows the necessity of rubbers, dressers, pickers, &c., for he says "from whence they are broken off and dressed by hand in the usual way." But I shall be astonished if ever it is brought to such perfection as to bear the critical examination of English judges of typography, as to perfection of what in type-founding is called *justification*, or that every letter of each set of these moulds stand equally and identically square to the body, and ranging at head and foot.

The machinery consists of a mould formed by a combination of steel bars with grooves and matrices, which are secured by a frame and brace of iron, upon a strong wooden bench; a lever carrying

a heavy rammer is intended to fall down into the middle of the mould, for the purpose of driving a portion of fluid type-metal through small apertures into the grooves and matrices, where the body and face of the letter are cast. The manner in which this apparatus is constructed is fully explained and shown in the Lond. Jour. of Arts and Sciences for May 1, 1824.

Several bars, that constitute one side of the mould, are put together. A bar with horizontal grooves, forming the bodies of the respective types, is made fast by screws to a bar which receives the matrices. Each of these matrices has the face of the intended letter stamped into it, and they are so arranged that they individually stand opposite to the respective grooves of the bar. On the top of the matrices a bar is fastened for the purpose of holding them securely in their places; a straight bar is laid upon the bar before-mentioned, as a cover to the grooves, in order to form the upper sides of the square recesses; the break-bar is placed in front of the first bar; it has a series of small nicks, or openings, which come exactly opposite to the ends of the grooves; and through these nicks, or openings, the fluid type-metal is to pass into the groove and matrices, where the body and face of the letter are cast. The spaces between the nicks of the break-bar coming against the side of the grooves, are to close them and form the feet of the types: another bar is to be laid upon, and form the cover of the break-bar, and these when so combined produce one side of the type mould.

In the recess between the moulds the fluid metal is to be poured to a certain height, and from thence it is ejected and driven into the moulds by the descent of the rammer hereafter described. The several bars being combined, and laid upon the solid metallic bed, the lateral pieces of the frame, which turn upon hinge-joints, are then brought to bear against the sides of the mould-bars; the top-piece is next placed over them, and the whole is made fast by bringing the looped part of a swinging lever to bear upon the nose or projecting end of the top-piece. This swinging lever is brought up to its bearing by means of a tongue, which is forced against the lower part of the lever by the action of a hand lever.

The mould is now ready to be employed for casting. A quantity of fluid type-metal is poured (by means of a ladle) into the central recess of the mould. The rammer is now to be let fall into

the recess, which is done by drawing a trigger, when a string connected to it pulls back a bolt or catch, and the long lever instantly descends with the rammer. By this means the fluid metal, previously occupying the lower part of the recess, is displaced from thence by the rammer, and having no means of escaping, is driven with great force laterally into the moulds and matrices.

The operation of casting having been thus performed, the next consideration is a mode of withdrawing the types from the moulds. To do this the workman places his foot upon a step, or treaddle, when the end of the compound lever acting against a pin under the leg, throws up the lever sufficiently high for the workman to take hold of the handles; he then lifts the lever until it has passed the spring catch, and there he leaves it supported. A hasp in front of the table is now raised, when the swinging lever, being released, quits the tongue of the top-piece, and allows the frame of the mould to be opened.

The mould and the cast within it is now removed from the bench, and placed upon a table provided with cramps, which hold the solid part of the cast, while the mould-bars are carefully drawn asunder by wrenches, leaving the types standing out on each side of the cast, like the teeth of a comb, from whence they are broken off and dressed by hand in the usual way.

It would appear, from the above description, that in many parts of the process there is a complete identity in the machinery of M. Didot, and Dr. Church, and this, according to the law of patents, will put the exclusive right of the latter to any part of his patent, in some jeopardy, if ever contested: but I think an English expired patent anticipated them all; at least, that this idea of casting type in multiplied moulds is not entirely novel, will be seen by referring to an expired patent of Mr. W. Nicholson.—*See Repertory of Arts*, vol. v, pp. 145—170; also, chap. vii, *post*.

An artist in Scotland (Mr. Hugh Wilson, engraver, Glasgow) has been trying, by model, to make a self-inking press, upon a nearly similar principle with Mr. Napier's. Mr. Wilson does not profess it necessary that the entire construction of the press should be with a view to the application of his inking apparatus, but that it may be applied to all the common presses at present in use.

Two composition rollers are attached to the tympan by means of two horizontal arms, or bars, connected at their extremities by a cross-bar passing through a wheel which runs on a centre-bar, fixed in the carriage. When the tympan is thrown up, the roller-frame is pushed back by two connecting bars, extending from the tympan to the extremities of the cross-bar. By the motion produced in pulling or throwing up the tympan, these two rollers, which have been previously inked by the distributing and feeding rollers, are drawn across the types, which are thus inked in their turn. When the paper which is to receive the impression is put on to the tympan, and the tympan is brought down upon the types to pass under the press, the two rollers are again made to pass over the types. The passing of the rollers twice over the types before an impression has been made, produces an effect in inking them equivalent to what would be produced by drawing the single roller four times over them; which is all that is reckoned necessary to distribute the ink equally over the types, so as to render the impression clear and uniform.

The paper and types being thus prepared to receive the pressure, the carriage is moved forward on wheels by the common winch, or moving handle, so as to be brought directly under the centre of pressure. The pressure in this press is produced by means of an excentric wheel, below the type-carriage when in this position, working against a friction wheel, and forcing upwards a metal block which slides in grooves, and in its turn forces the type-carriage up against the platten, which is fixed, and thus produces the impression.* The excentric wheel is put in action by a handle, or lever, similar to the one in common use, and the motion of this lever is communicated to the wheel by means of a universal joint. The excentric wheel being made to describe one quarter of an entire revolution in producing the pressure, gives motion also to the feeding roller, which, by its means, is made to turn round a certain proportion of a revolution according to the nature of the work and the quantity of ink required.

The feeding roller is supplied with ink by means of a trough and scraper. While the impression is being produced, the distributing roller is brought in contact with the feeding roller while in motion, and receives a sufficient quantity of ink for the next impression.

* Another invention at least very nearly approaching to Mr. Ruthven's.

While the carriage is returning to its first position, the distributing roller is kept revolving by means of a small friction pulley on the end of it, and a cord stretched between the extremities of the carriage-frame, and is thus made to distribute the ink over the whole surfaces of the other rollers. When the tympan is thrown up to take out the impression, the rollers are again brought over the types, and the same operation is repeated which has been described.

There is another contrivance in this printing press, which must not be omitted. The tympan is so constructed, that the paper which is to receive the impression is made to revolve on its centre, and after having received an impression on one side in the manner described, it can be turned by the pressman in an instant, thrown down on the types, and an impression on the contrary side taken before the rollers could have been inked and the types prepared for such an operation in the common mode of printing. How useful this contrivance must be, if effectual in printing jobs which require to be done in this way, must be obvious to those acquainted with it; excepting that most jobs are only required to be printed on one side. The various other contrivances, however, exhibited in this model of a self-inking press, may render it an object well worthy of the attention of engineers in this department of machinery.

A very clear engraving and description of this model will be found in the Glasgow Mechanics' Magazine, of 5 June 1824, No. XXIII.

Mr. Ruthven constructed a self-inking apparatus, to be attached to his press, which would not require any additional movements for the workman: a trough for the ink was placed at the left-hand end, across the press, with the usual application of the iron cylinder and composition rollers. The last, or inking roller, being fixed in a frame made to open like a pair of compasses by a connecting rod attached to the joint of the tympans, the raising of which would bring forward the roller over the forme. To render the distribution of the ink perfect a roller was constructed to accompany the last-mentioned one, having also a lateral movement while revolving; on bringing forward the platten and turning

down the handle, a supply of ink would be taken and distributed on the rollers.

Mr. Cope, of New North-street, Finsbury-square, is the manufacturer of a press in which the power is gained by motion differing from those already described, and in a very simple and efficacious manner. It may be described as a hinge, or knee-pan joint, the parts of which, as brought by the lever into a vertical position against each other, cause the descent of the platten. The staple of this press is all in one piece of cast iron, like the Stanhope or Columbian, and it appears altogether to be got up so as to be afforded at a very cheap price.

Messrs. Taylor (brother of Mr. Richard Taylor, the printer) and Martineau, of the City Road, have made several presses of a construction in which the power is gained by a principle somewhat similar to that last described; there is a combination of inclined planes, or wedges, acted upon by bars, with hinge-joints: a lever bar, and coupling bar, working in projections on the staple, or general frame of the press, connect with the bars, which move from an angular into a perpendicular position when the impression is required: a regulating screw in the head raises or lowers the upper wedge: two rods are acted upon by a lever to counteract the weight of the platten. The workmanship is excellent, and the press highly spoken of. It is named the Russel Press.

PATENT TYMPANS.

Having done, as I trust, impartial justice in describing all the manual printing-presses which have come within my knowledge, being the inventions or improvements of others, it may now be allowable for me to enter upon a description of an apparatus invented by myself.

It consists of improved tympans applicable to presses of the usual construction, but of enlarged dimensions. In the peculiar

make of these tympans consists the advantage which such a press is capable of affording; namely, that of enabling a printer to enter into a competition of price with the printing machines impelled by steam, or mere manual power; *provided he is supplied with double-royal or double-demy paper.* The difficulty of obtaining this, as a general commodity in the market, particularly in the low-priced papers for ordinary work, was the only objection which ever operated against this patent, until the success of the machines (to be described in the following chapter), gained a more material advantage in respect of speed for periodical publications; and so far surpassed the capabilities of my mode of working, as to drive me into the adoption of a machine, and the abandonment of my own invention, as soon as I found one constructed upon a principle which appeared to possess every requisite qualification for good as well as expeditious work, without the appendage of a steam-engine.

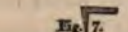
However, it answered my purpose to a considerable extent: I gained, so far, one very material object which I had in view, namely, the retaining in employment, and keeping up a succession of, the regular-taught pressmen, at the same time that I was opposing the intended monopoly of all press-work of long numbers. I worked two double-demies pretty constantly for five or six years, printing some hundreds of reams of paper, and keeping together business and connection which would otherwise have fallen into the hands of the proprietors of the steam-engine machines.*

The operation consists in the working off *both formes* of a sheet at *one time*, and with *one impression*, upon paper of *double size*, viz. double royal, demy, crown, post, foolscap, &c. by the means of a press of adequate dimension and power; and by the same action, with the addition of these tympans, without any increase of labour time, or motion, at the moment the impression is given to the paper, it is divided into sheets of *single* royal, demy, &c.; and this with such an undeviating precision of line parallel to the pages as no cutting by the most careful hand can ever attain. The tympans may be affixed, at pleasure, to a common royal-size press, which may thus be made to work (and cut) double foolscap.

They are shown in perspective at figs. 1 and 2. Fig. 1 repre-

* The saving, in ordinary work, was twenty per cent; finer work twenty-five; foolscaps 30 to 40; on finer work still more.

sents the tympans turned down upon the press, with the hindmost part of the inner tympan opened, to show the internal part. These tympans consist of, first, the outer frame, of dimensions according to the size of the press or work required; the additions to which are, a plate of iron, steel, brass, or other sufficient substance, about seven-eighths of an inch in width, *a a;* the back side, fig. 1, of which is level, but the front side, fig. 2, is raised in



the middle, the centre part being about one-fourth of an inch in thickness, and the two sides about one-eighth of an inch only, a part of the top or front of which is shown in full size, fig. 3, and cross section of the same, fig. 4; along the middle or thicker part

are cuts or openings for the purpose of admitting the knife hereinafter described, leaving small parts of the plate uncut, as seen in fig. 3. On each side of the same, along the centre of the thinner part, is a row of small holes, at about half-inch distances. This plate is fixed across the middle of the outer tympan, to each side, being countersunk into the same, *b b*. Secondly, the inner tympans are formed of two parts, having each part three sides, and moving on pivots, near *a a*, attached to the outer tympan; these inner tympans, when shut down, are fastened in the common manner by hooks and eyes, or buttons; each part, when opened to adjust the blankets, will incline back on the pivots.

The *Divider*, or *Knife*, is shown, in front and back view, figs. 5 and 6, and section of the same fig. 7, and is seen fixed on the frisket, fig. 2, *b b;* it is made of a plate of iron or steel, about three-fourths of an inch wide, turned down at a right angle on one side, about one-fourth of an inch in width, and in length sufficient for the width of the sheet of paper intended to be cut, and this must be fixed so as to be exactly corresponding to the openings in the plate *a a*, before described; the part so turned down is cut into angular teeth, about a quarter of an inch from point to point, each tooth having two chisel-like edges, formed by being filed and dressed on the outside of the part so turned down; on the inside of the angle the teeth are to be finished all along fair and smooth; one or more of the teeth are then to be filed out at intervals corresponding with the parts of the plate left uncut. The pivots, or joints, of the tympans and frisket being accurately adjusted, the knife is then fixed to the frisket (at each end by screw or other connexion), so that when the frisket is turned down on the tympans, the knife shall freely enter the plate at the openings before described. The plate and knife now occupying the usual place of point-screws and points, those necessary articles are removed to the centre of each half of the tympans above and below the plate, as *c c d d*. If wished, the positions of the plate and knife may be reversed, by fixing the plate to the frisket and knife to the tympan, or a plate both on frisket and tympan, and knife to the forme or table of the press, but not with equal certainty of operation. All these parts being properly adjusted, the mode of application is as follows: for making ready a forme, or sheet, the tympan sheet is drawn on the tympan, as in the ordinary mode, and the frisket

pasted and cut out; but for working the first side of the paper the knife must be displaced: the whole of the paper being worked on one side without the knife, it is then replaced, and the reiteration proceeded with; the sheet will then be divided exactly along the centre, excepting at the parts where the portions of the plate have been left uncut, and the teeth filed out of the knife, as before described; which uncut parts answer the important purpose of keeping the double sheet adhering as one, for the pressman who may be pulling, to draw it off the tympans over to the bank, where it is finally parted by the other man, who is inking, while looking over his heap, when six or eight sheets are accumulated, by means of a gentle pressure with each hand at each end of the heap; the white paper, or first side, is worked with four points, placed opposite to each other in the middle fold of each half of the double sheet, as *c c d d;* but for the reiteration the two lower points, *d d,* are taken off, and the sheet kept in register by the two upper ones only. For cutting the sheet into more parts than two, I extend the same principle, by placing knives and plates in various positions, or at right angles with each other.

The *Demi*-(or half)-*chases* are made so as to contain the pages imposed within a less measure of square than usual; one side of the rim is made particularly straight, and rather less in breadth than the other three sides; this narrow side forms the part to lie in the middle of the table of the press; by turning a pair of chases so made on contrary faces, the two narrow sides will join and form as one chase; the pages are not in these chases, as in others, for all sizes above folios locked up by having side-sticks and quoins on all four sides, but only on one side and at each end. The inner forme being locked up on the right side only, and at each end, and the outer forme on the left side only, and at each end; and the margin being made when the two demi-chases are laid together on the imposing stone, as if the same were one large chase of double dimensions, the pages will require no more margin in the centre of the double sheet than a fair equal proportion for the division of margin. The chases must be made in proportion to the size of the work intended to be executed.

The *Girths* are formed of lines made of any close-formed strong material or substance, but round or narrow, and I particularly prefer catgut of about one inch in circumference; such lines I

arrange in pairs, one pair to run the table in, the other pair to run it out, applying them to the wheel after the manner of leather or web girths; except that such lines I place with a small degree of obliquity from either end of the table to the wheel, so that in winding round no one coil shall touch or interfere with the other, but take a spiral direction, one pair giving place by being wound off the wheel as the table is run in or out, to the other pair, which by being then wound round the wheel causes the table to traverse in the given direction; by these means the rounce, or handle, will be, in every position, or turn of the wheel, equally tight, and no friction or adhesion of the lines can ever take place.

The patent embraces some material improvements in the mode of *blocking*, or mounting stereotype plates to the necessary height for printing (for which see Chapter on Stereotype), and some other improvements in the machinery and process of printing; viz. Chases, necessary to obviate the inconvenience of excessive size of double formes—Girths, with which the most heavy press can be run in and out with the greatest ease, &c.; but as these things are more of technical than public utility, I have thought the enrolled specification the only necessary place for inserting particulars.

PRINTING MACHINES.

CHAPTER VII.

Of Steam-engine and other Machinery applied to Printing—General feature—Mr. Nicholson; his Patent, as containing the Principle of every subsequently-invented Machine for Printing—Machine of König—The Times Newspaper—Mr. Bensley's first application of it to Book-work—Machines of Applegath and Cowper—Rutt—Brightley and Donkin—Bacon—Cooper and Millar—Applegath again—Bold—Sir William Congreve—Parkins—Mr. Spottiswoode—Mr. Hansard; Napier's NAY-PEER.

DURING the progress of this work hopes have been continually indulged that any delay in its publication would be compensated by finding the trade subsiding into something like a settled state, and enabling this chapter to be so far completed as to present a full account of the various machinery used in printing; but since the first application of the steam-engine to this business the inventive genius of the age has been particularly alive to the improvement of the art which is ultimately the improver of all others, and no sooner has a clear description, and satisfactory opinion been formed of one invention, than another has started into notice, with, of course, some pretensions to superiority over all those that have preceded it.

One general feature in the various inventions above referred to for improvements in (the speed of) printing, with the exception of one not yet generally known, is first the substitution of two cylinders, or of one cylinder and a plane, for producing the impression, instead of the two plane surfaces of the ordinary, or Stanhope press; and secondly, the use of cylinders covered with the adhesive and elastic composition, for applying the ink to the surface of the forme of types, as described in a preceding chapter, which, in the old process, was laid on with large balls, or dabbers.

For these important ideas both the public and the patentees of printing machines seem to be indebted to Mr. William Nicholson, the editor of the journal bearing his name, who obtained a patent for them in the year 1790. Upon referring to this patent,* descriptions of which have been given in the Repertory of Arts, the Pantologia, and other scientific works, it appears that Mr. Nicholson has completely taken the lead upon this subject; and it is probable, that had he joined the actual practice of the art of printing by machinery to his knowledge of the theory, little would have been left for subsequent mechanicians to perform, and still less to be claimed as their original inventions.

Those parts of the specification relative to our subject, refer, first, to casting the type; secondly, to applying the ink; and thirdly, to taking the impression. The first of these relates to the formation of the mould, so as to cast two, three, or more letters at one pouring in of the metal;† and to the finishing the stem of the letter, so that the tail is rendered "gradually smaller the more remote it is, or farther from the face. Such letter may be firmly imposed upon a cylindrical surface in the same manner as common letter is imposed upon a flat stone." * * * * "To be imposed in frames or chases adapted to the surface of a cylinder of wood or metal." * * * * The ink, &c. is proposed to be applied by a cylinder covered with leather, pelts, &c. with "two, three, or more smaller cylinders, called distributing rollers, moving longitudinally against the colouring cylinder, so that they may be turned by the motion of the latter." * * * * The impression is designed to be effected by another cylinder causing the paper to pass between "two other cylinders, or segments, in equal motion, one of which has the blocks, forme, plate, assemblage of types, or originals attached to, and forming part of its surface, and the other is faced with cloth, or leather, and serves to press the paper, cloth, or other material, as aforesaid, so as to take off an impression of the colour previously applied." This he varies many ways, in the usual see-saw language of patents, applying his invention "to the printing of books in general, paper-hangings, floor-cloths, cottons, linens, silks, ribbons, laces, leather, skin, and every other flexible material whatsoever." He then gives descriptions and drawings

* See Repertory of Arts, vol. v, first series, pp. 145—170; plates 8, 9, 10.

† See *antè*, Dr. Church and Pouchee.

of the presses and apparatus to effect the intended purpose, either by means of the types, &c. fixed to the cylinder, or to formes, or plane surfaces submitted to the action of the cylinder by being laid on planks passed horizontally between them, the whole of which may be found, with the specification of the patent, in the work just referred to.

My reason for giving so detailed an account of a patent for printing machinery which, having been taken out upwards of thirty years ago, has so long since expired, is this: from the arrangement of his proposed colouring cylinder—of its subordinate, or distributing cylinders—of the impression cylinder—the plane table—the mode of catching up the paper and carrying it round the cylinder—the impression cylinder, whereby the paper is pressed against the type as that cylinder revolves, and by which means the sheet was to be printed—these, and many other parts of Mr. Nicholson's machine, as described in the specification, show that all subsequent attempts at machine-printing are but so many modifications of the same principle, rendered at last practicable by the invention of the composition for covering of balls and cylinders; without which, I risk nothing in saying, that no printing machine, at present invented, would ever have been rendered in the least degree effectual.

Again; Mr. Nicholson's idea (impracticable as I conceive it to have been in carrying on the various indispensable processes of proofs, revises, authors' corrections, &c.) of composing and imposing wedge-formed type, was in some measure modified and brought into practice by the pans, or galleys, of Mr. Bacon, fixed so as to form a rectangular frame, or prism, upon his cylinder, to revolve against one cylinder, or segments of cylinders, for inking, and another for pressure. And since Mr. Bacon, Applegath and Cowper's stereotype plates, cast or bent to form segments of a circle, so as to be fixed on a cylinder, are but substitutes for a like purpose.

The means, however, which Nicholson specified for distributing the ink were essentially defective; and the other parts of his invention were but very imperfectly carried into effect.

It is scarcely necessary to observe, that the great object in the employment of machinery is to lessen the expense of printing; and

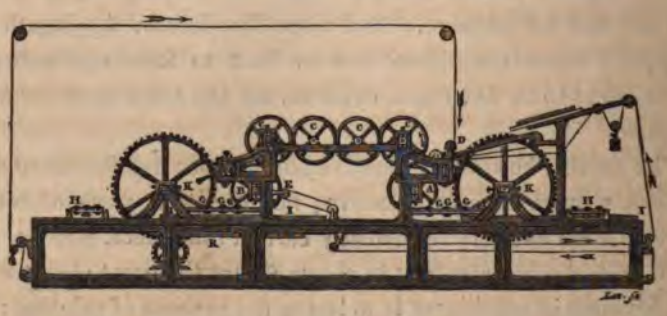
that the comparative merits of the various printing machines must be determined by this common and final standard.

In order to obtain this most important result, it is obvious that, in the construction of a machine, simplicity, durability, and a constant aptitude or readiness for working, are the first and most essential requisites; without which the most ingenious combination of mechanical knowledge, however highly to be esteemed as a piece of work, will produce little or no advantage to the proprietor or the public.

In the attainment of the above-mentioned requisites, one of the principal difficulties to be overcome is the equal spreading, or, as it is technically called, distribution, of the viscid and adhesive ink upon the face of the types, for which purpose very elaborate and costly apparatus has been made use of in other machines, and subsequently removed by the invention of the composition-covered cylinders. By this improvement, adapted to a printing machine, the perfect distribution of the ink appears to be attained by very simple means, and the same hue or shade of colour is preserved by the most trifling degree of attention, with a regularity which cannot be effected by the hand-rollers of the common class of workmen.

The engraving represents the elevation of a machine, worked by steam, or other competent power, for printing both sides of a sheet of paper, in which the sheet is conveyed from one cylinder to the other, by means of endless cords combined with a series of conveying cylinders, or drums.

The following little section will serve to give a general idea of the principle upon which these machines are constructed.



A is a cylinder, which gives the first, or white-paper impression. B, a similar cylinder, which gives the second impression, or iteration. C C C C, cylinders, or drums, over which the sheet of paper passes in firm contact, being held by the pressure of endless strings; the sheet of paper ends at D, and comes out of the machine, printed on both sides, at E. The course of the strings and drums is indicated by the arrows.

The rollers for inking, in a machine of this construction, according to the last improvements of Mr. Cowper, lie horizontally upon a plane smooth surface, called a distributing table, in open notched bearings, acting by their own weight, and revolving by the friction of their surfaces against the surface of the table, without wheels, springs, or any other machinery whatever; so that, on the ground of simplicity and readiness for working, nothing can excel the contrivance.

The inking apparatus consists of an ink-trough, a plane surface, and rollers; the type passes under the rollers, G G G; the rollers, H H, assist in distributing the ink upon the surface of the distributing table, I, which is fed with ink from a trough on the spindle of the wheel, K, by means of a vibrating roller, which cannot be seen in the drawing.

The rotatory motion of the printing cylinders and drums is produced by a train of wheels at the back of the machine, and the distributing tables upon which the formes are placed move backwards and forwards under the cylinders A and B, and the rollers G G G, by means of a double rack, R, beneath the table.

The printing machines of König, Walters, Bensley, Applegath and Cowper, Donkin, Brightley, Rutt, Winch, Cooper and Millar, Congreve, Wood, Napier, and lastly, My Own, all possess one and the same general principle, applied in a variety of forms. The formes, fixed on the carriages (the ink being communicated to the face of the type by an arrangement of rollers), are drawn under a cylinder, on which the sheet being laid, the impression is taken off on one side. The sheet is then conveyed to a second cylinder, by the rotation of which it is carried on to *the second forme*, or reiteration, and the sheet is perfected; or, to speak intelligibly to those who are not of the profession, the other side is printed. All the manual labour in this process, by those impelled by steam or other machinery, is performed by two boys, one of

whom lays the paper on the first cylinder, while the other receives it from the second cylinder, and lays the heap perfectly even.

Mr. König was the inventor of the first steam-engine printing-machine brought to maturity in this country, and which he erected for Mr. Walters, proprietor of The Times newspaper. "Whether he was indebted to Mr. Nicholson for his elementary principles, or whether almost the same ideas spontaneously occurred to each individual, is a question that can only be satisfactorily solved by the former."

The Literary Gazette of October 26, 1822, contains a brief notice of the origin and progress of this invention, and its first application to the purposes of book-work, with an excellent perspective view of the machine. As I have been kindly offered the use of the engraving, I shall adopt the description also.

MR. BENSLEY'S PRINTING MACHINE.

"M. König, by birth a Saxon, and by occupation a printer, many years ago conceived it possible to print by steam, though he then expected no more than to be able to give accelerated speed to the common press, to which end his first efforts were bent. As from the nature of such an undertaking, considering the state of scientific pursuits in his native land, he could calculate on little success unaided by others, and failing in his application for encouragement and support at the hands of the most eminent printers in several of the continental capitals, he turned his eyes towards England. Arriving in London about 1804, he submitted his scheme to several printers of repute, who, not being disposed to incur the risk of property which a series of experiments were sure to incur, and perhaps placing little confidence in a successful issue, received his overtures very coolly; and it is probable his applications in this country would have shared the fate of similar attempts abroad, had he not finally been introduced to Mr. Bensley senior, who, attracted by M. K.'s plans, speedily entered into an arrangement with him. After a short course of experiments on the fabrication of a press which should

have accelerated motion, and at the same time render the work of the man who inks the type unnecessary, the above gentlemen were joined by Mr. G. Woodfall and Mr. R. Taylor, the former of whom however soon retired. The remaining three, in no wise discouraged by the tediousness and expense which all who are conversant with the progress of any invention in machinery well know to be unavoidable, persevered amidst unforeseen perplexities, which were doubtless not diminished by the parties' deficiency in practical mechanical knowledge.

"It was at length discovered that the intended improvement of the common press could not be brought to bear; and that much labour and prodigious expense would be thrown away, unless more radical alterations were invented.

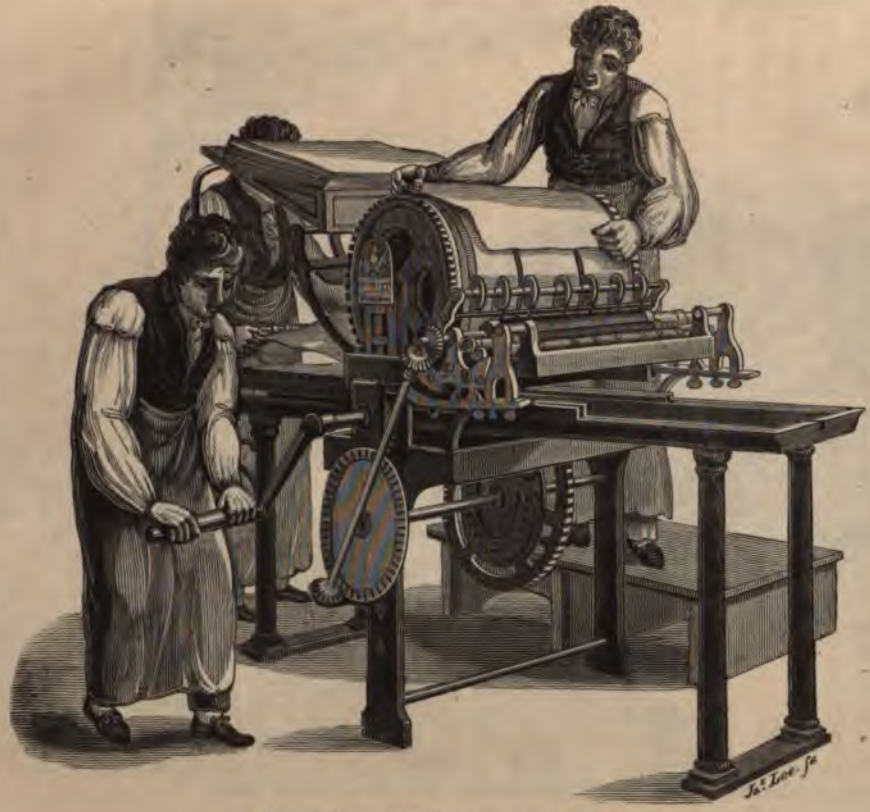
"Cylindrical printing was now thought of—and after some two or three years of renewed exertion, a small machine was brought forth, the characteristic of which was, that instead of the printing being produced by a flat impression (similar to the press) the sheet passed between a large roller and the types still flat; and in lieu of the old fashioned balls, used by hand to beat over the types and so to communicate the ink to their surface, skins were strained round smaller rollers, on which it was contrived to spread the ink, and under which the forme, *i. e.* the frame in which the types are fixed, passed in its way to the printing cylinder. Considerable promise of success attended this production; and after continued experiments it was deemed practicable to extend the general principles to a more powerful machine. To print a newspaper was considered highly desirable—and on exhibiting to Mr. Walters, proprietor of the Times newspaper, the machine already erected, and showing what further improvements were contemplated, an agreement was entered into with that gentleman for the erection of two large machines for printing his Journal. So secret had been the operations of the patentees, that the first public intimation of their invention was given to the reader of The Times on Monday the 28th of November 1814, who was told that he then held in his hand one of many thousand impressions thrown off by steam. At this time but few persons knew of any attempt going on for the attainment of the above object; whilst among those connected with printing, it had often been talked of, but treated as chimerical.

"The machines at the Times office, cumbrous and complicated as subsequent improvements have made them appear, are yet, in many respects, admirably adapted to the purpose for which they were erected, and it is believed will outlast many contrivances for printing which have been since brought out.

"The next advance in improvement was the manufacture of a machine for Messrs. Bensley, distinguished from those before mentioned, by the mode of perfecting (or printing on both sides) so that the sheet of white paper is placed in the feeder and delivered from the machine printed on both sides. In addition to the essential difference between this machine and those previously made, it came forth with many obvious improvements, though still unquestionably complex: and for the first attempt at effecting register (causing the pages to fall precisely on the back of one another) a greater degree of success than might have been expected was attained, subsequent experience showing the many difficulties to be surmounted in the accomplishment of this object. Deficiencies were now detected in the inking: the strained skins were found uneven in their surface; and attempts were made to clothe the rollers with an elastic preparation of glue, treacle, &c. which has at length attained perfection.*

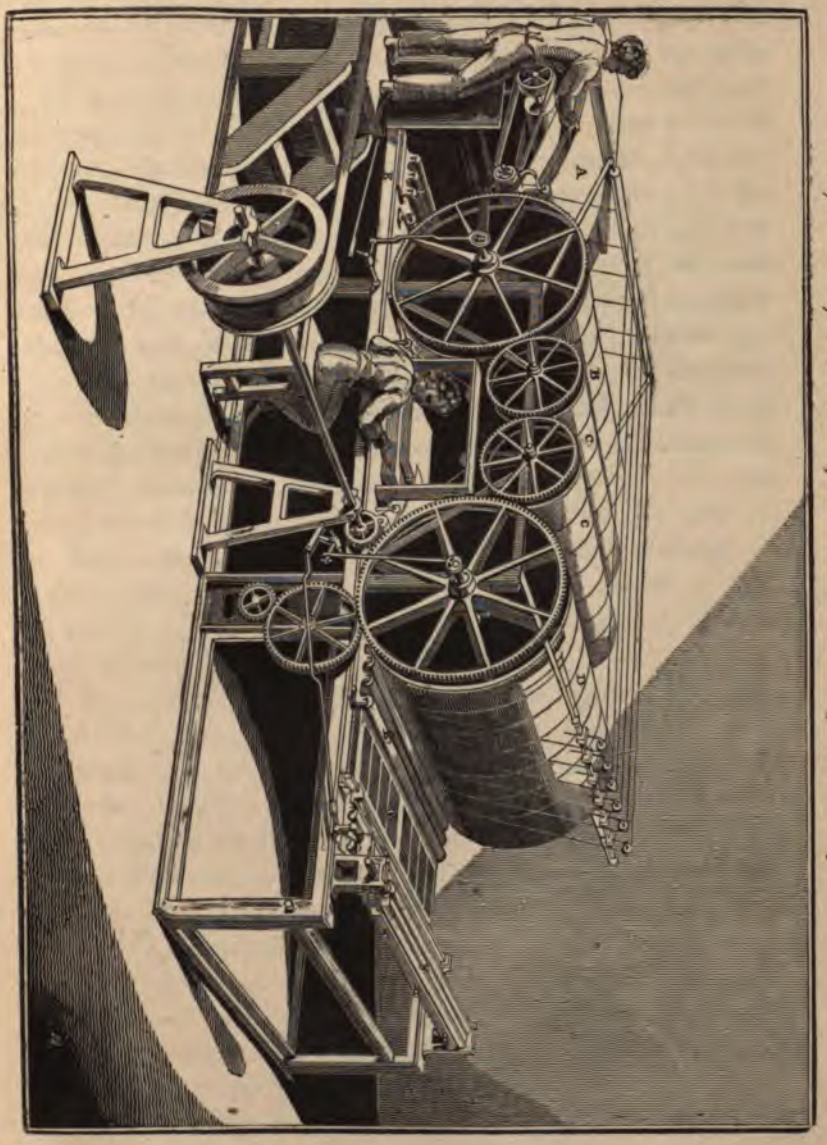
"By this time the invention had attracted the attention of various individuals, who thought the manufacture of printing-machines an easier task than they afterwards found it to be; and far the greater number of attempts, we believe, failed almost as soon as undertaken. A machine, however, similar in its capacities to that last mentioned, but much more simple in its construction, has been brought out—under the direction of some eminent

* So sanguine were the patentees of having now arrived at the *ne plus ultra* of their labours that they issued a Prospectus, dated March 18, 1817—offering three different sorts of machines at a high scale of prices, and, besides demanding a large sum to be paid as purchase money, further requiring a considerable annual premium, calculated upon a principle most effectually to prevent any one from venturing to erect a machine. This prospectus presented a Table of Expenses and Savings, which, upon being *now* perused by those who have had some experience of the value of printing machines, can only create a smile, or perhaps a wish that they could realize all the advantages so confidently held forth! It needs scarcely be added, that after the issuing of this prospectus, the original patentees never sold a single machine!



Mr. Pratt's Printing Machine.

Mr. Stafford's Portable Press.



Perspective representation of Mr. B. Bensley's Printing Machine.

To face page 698.

English engineers.* It was not long before these gentlemen were requested to apply their inking apparatus to Messrs. Bensley's machine; and at one stroke, as it were, forty wheels were removed—so great was the simplification: and at the same time the defects of the former system of communicating the ink to the types were most effectually remedied. Massive and complicated as it was, yet as an immense expense had been incurred in its erection, Messrs. Bensley went on using their machine until the destruction of their establishment, by fire, in 1819. And even after the re-building of the premises, the machinery, which had been only partially damaged, was reinstated, and worked for some time. It has now, however, given place to two large and admirable machines built on the improved plan, which, when inspected by a judicious eye, can only create wonder at the heretofore circuitous manner adopted to attain ends so apparently within easy reach. The writer has no hesitation in stating, that the original machine contains upwards of one hundred wheels; whereas the new machine, with about ten wheels, accomplishes, in point of quantity, exactly the same object, with a marked advantage in regard to the quality of the printing. Another important point respecting the new machine is, that it occupies scarcely half the space of the original one.

"The printing machine, in its present state, appears susceptible of little improvement. It produces excellent work, and its movements are attended with certainty and despatch—the double, or perfecting, machine throwing off 800 to 1000 sheets, printed on both sides, within the hour, and the single machine delivering 1500 or 1600 done on one side: which, in cases where one forme of the types (as in newspapers) is ready to be worked off while the last side is preparing, is attended with the greatest advantage, since the rate of delivery thereby becomes doubled. The first is that by which our Gazette is printed, and the last described is that with which Mr. B. Bensley is now (and has for a considerable time been) printing the Morning Chronicle newspaper.

"Other leading daily newspapers are also wrought off by steam; as well as several publications of extensive circulation.

* Executed by Mr. Dryden (a very clever and judicious engineer, who manages the extensive concern of Mr. Lloyd), under the instructions of Messrs. Applegath and Cowper.

Like almost every ingenious invention, this has no small portion of prejudice to encounter, and perhaps has been longer in forcing its way than many other schemes of real utility. The various advantages, however, which it holds forth have attracted the attention of several proprietors of the more extensive printing concerns, who have introduced it with benefit to the public—to whom, by means of this great reduction of labour, the productions of the press may be furnished at a reduced rate of charge.

"In the opposite engraving, a boy is represented as laying on A, the sheet of white paper. B, is the cylinder which prints the first side of the paper. C C, intermediate cylinders over which the paper travels to D, the cylinder which gives the final impression. E, the inking rollers under which the forme (*i. e.* the types) is in the act of passing. F, the reservoir of ink, from which the inking rollers are supplied. G, the forme, receiving its last inking before it goes under the printing cylinder. H, a sheet is seen just being delivered into the hands of another boy, whose business it is to keep the sheets, as they come out, in a heap. The lines at top of the machine represent the tapes, which run round the cylinders and secure the sheet."—*Lit. Gaz. Oct.* 26, 1822.

MR. RUTT'S MACHINE.—*Made by Napier.*

THIS machine is put in motion by hand labour: the opposite engraving represents the table at the back part of the machine, with the forme of type, just after a sheet has been printed, and the lad at the back in the act of taking it away; during the time the table is returning to the front part of the machine, the cylinder remains stationary, allowing time to lay a sheet of paper on it, and, by a corresponding arrangement, the table gives motion to the cylinder, and causes it to revolve; which, on passing again to the back part of the machine, performs the operations of inking and printing. From the principle of the motion introduced for the purpose of moving the table backward and forward, the man employed turns the handle always the same way. The bevel-wheels at the side of the machine, are for the purpose of giving motion to the ink-rollers, but, by disengaging the bevel-wheel on the upper end

of the shaft from the bevel-wheel at the end of the ink-roller, the inking-rollers can be worked independently of the machine, for the purpose of getting them in order previously to the commencement of the day's work.

A MACHINE to work by hand was also invented by Mr. Brightly, printer, late of Bungay, in Suffolk; and made by the celebrated engineer Mr. Donkin. The inking and pressure of this machine was, like all the forementioned, by cylinders: but the movement of the formes was different. They were brought alternately under the action of the pressure and inking cylinders, by rising and falling, and passing over and under each other. The machine itself was a beautiful piece of finished mechanism; but I saw many defects in its operation of printing. I believe only one of these was ever made; and that has become, as Rowe Mores says of some of his letter-founders, a *nullibiquarian*.

MR. BACON'S MACHINE.

THE first principle of this machine is, that the type is to revolve upon a cylinder, in order to be printed;* but still the pages are to remain upon plane surfaces. This seeming contradiction is reconciled by the pages being secured, or imposed, in what Mr. Bacon called "pans," or printers would call galleys; and these would be fixed upon the surface of a cylinder to form a prismatic roller, such as a square, pentagon, hexagon, octagon, or other figure, and mounting this in a frame, with the means of turning it round upon its centres; a second roller, formed of segments of lesser circles, is applied in such a manner that its various surfaces will keep in contact with the surfaces of the types, and the machine being put in motion, the paper which is to be printed is laid upon a board, passed through, and receives the impression on one side. The types are inked by a cylinder of the usual composition, one of a series which is supplied from a ductor, or trough, fixed at the upper part of the machine, which is made

* See *antè*, Mr. Nicholson's patent.

to revolve upon excentric curves, so as to bring its surface in contact with the prisms of the main roller.

By this invention, the advantages of types upon cylinders are obtained, although imposed upon plain surfaces.

From this machine Mr. Bacon claims the merit of the discovery of printing by a circular movement. I believe he really was the inventor of the circular movement of the prismatic roller, but it is not possible that M. König, or Applegath and Cowper, could be indebted to his prisms for any part of the idea of printing by means of a plane and cylinders, or of forming plates of arcs of a circle, and fixed upon a cylinder. In fact, as said so often before, Nicholson's patent contains sufficient ideas for printing by these means, to destroy all pretensions to originality in any invention I have yet seen.

But this little machine was, indeed, a most beautiful piece of workmanship. The whole would stand upon an ordinary writing table, and it produced the sheets, at its exhibition, with great rapidity. But, that it could be introduced into a book-work house, or even a job-house, to execute all the variety of sizes of works and pages, was a thing which I could never believe: any practical printer might at once see the impracticability of applying the revolving cylinder to the general purposes of type printing. The exhibition at Mr. Donkin's factory was with pages of new type, as set up in successive order in the type-founder's pages, and the subsequent application to the work of a Bible or Prayer Book. So far the "pans" or galleys might be made to hold fast the type, spaces, and quadrats, by dint of tight screwing up; but the usual chance of variety of justifications, table work, and other contingencies of a compositor's work, which makes it sometimes a difficult matter even to raise one of the tight-locked-up quarters of an octavo forme from the stone, and drop it down, *all of a piece*, on to the press, would make it exceeding problematical whether the principle of gravitation might not act rather mischievously during the revolution of the "pans." One machine was to perform the work of eight presses; to cost a pretty round sum of money at first to Mr. Donkin; and to pay a seigniorage to Mr. Bacon of no trifling amount. But when all this was arranged, one machine would not answer for all kinds of work. That calculated for octavos would not do for twelves; nor would that

proper for twelves do for quartos; nor one suited to quartos, for folios. I think I showed to the inventor that the various works actually laid on at six of my presses in one forenoon, would have required four of his machines to execute them; this was, therefore, a speculation not very likely for the London printers to enter into. To give a more minute account of this piece of typographical mechanism, or to incur the expense of an engraving is deemed equally unnecessary: the reader, therefore, who may be curious on the subject, is referred to Rees's Cyclopædia, Art. "Printing," 2nd col. of 2nd page of sheet 3 T 2, and plate III, Printing. Also, to the Cambridge University Press, where the only one of these machines that was, I believe, ever made, rests in peace, as not being found in any degree useful.

MR. ROBERT WINCH, *of Shoe-lane, in* 1820 *took out a Patent for certain Improvements on Machines or Presses, chiefly applicable to Printing.*

THESE were for the purpose of self-inking the types, supplying the paper, and printing the sheet at one operation. The apparatus consisted of a frame holding two tables or formes of letter, two pressing rollers, four inking rollers, and four frames for guiding the sheets of paper on to the pressing rollers to be printed. The motion of the rollers (which might be communicated by manual labour, or any other means) was to be reciprocal, like the motion of a horizontal mangle, and which, by one entire forward and backward traverse, was intended to print four sheets of paper. The bed, or basis of the machinery was upon two inclined planes, meeting pyramidically in the middle, over which a roller, or shaft revolved, turned by a winch, or by any other contrivance, connected with a first mover. Chains passed round this centre roller, connected with the pressing rollers, one of which was made to roll up one of the inclined planes by the chains attached to its axis coiling round the centre roller, whilst the other, by its own gravity, rolled down the other inclined plane, by its connecting chains uncoiling. As these pressing rollers traversed, they caused the inking rollers, four in number, to pass over the types, having

been previously supplied with ink from the ducts, distributers, and spreading boards, much in the usual manner. Thus, the two tables or formes of type were each twice inked, as above described, by the traversing of the rollers; and, as each pressing roller reached the extremity of its action, both at the middle and ends of the frame, a catch and lever caused the sheet of paper to be brought down in its frame to meet the pressing roller, which drew off the sheet from its frame, and caused it to lap itself round the periphery of the pressing roller, by which the sheet was carried forward on to the types, and received its impression. The further progress of the roller brought the paper up again, which was taken off by tapes, and was thence conveyed by hand to the pile of sheets before printed.

Upon comparing this apparatus with König's inventions, and that of Rutt, it would be difficult to discover in what part of the plan the present patentee founded his claim of novelty and originality.

This machine was advertised, exhibited, offered in shares! and finally disposed of somehow or somewhere; but the how or the where I could never find out. See more of this in London Journal of Arts and Sciences, No. 7, p. 25.

Messrs. Samuel Cooper and William Millar, of Fleet Street, London, are patentees and manufacturers of a machine bearing a title of "import high," "The British and Foreign Press, or Printing Machine;" with many parts common to all other printing machines; but with "variations" as endless and as confused as a patent specification can make them. Any person, however, having a tolerable knowledge of what other printing machines are, or ought to be, who will bestow close attention to the tedious and perplexing description in which all the parts, both old and new, are, without distinction, referred to by a confusion of several hundred large and small letters, and numerical figures, will soon perceive that this is not the *ne plus ultra* of printing machines. I can discover but little novelty in the essentials of the machine. The application of band wheels turned by chain, or catgut bands, instead of tooth and pinion wheels, prevents, certainly, much of the noise and vibration so objected to

in other machines. I believe the points for register are also new in this machine, but I doubt their ever being found to answer the purpose of pointing; the tables on each side of the pressure cylinder are furnished with apparatus for this purpose; a lever connects the ends of the two bars which carry these points, so that, when the points at one table are raised, those at the other are depressed. Further particulars of this machine, with a plate, may be seen in the London Journal of Arts and Sciences for May, 1822.

Mr. Applegath has taken out a patent for improvements on his machine previously noticed; the first of which consists in supplying the printing ink to the forme by two sets of inking rollers, acting partly on one side of the pressing cylinder and partly on the other; by which means, as the forme passes to and fro it receives its supply of ink without being carried out to a considerable distance, as is the case in other printing machines, where the forme is inked entirely on one side of the pressing cylinder, and where it must be made to travel with considerable speed in order to pass entirely under the inking rollers. By this improvement, the forme traverses a shorter distance than usual, and hence, the number of impressions produced in any given time, may be increased in the same ratio as the traversing distance of the forme is diminished, by which a saving of time will be effected in the operation of printing.

"The second improvement consists in the adapting and combining two paper-feeders with a printing cylinder, which revolves and prints in one direction only.

"By this means, the printing cylinder can be supplied with more sheets of paper in any given time than when one feeder only is used; and thus advantage may be taken of the increased rate of printing, which is obtained by means of Mr. Applegath's first improvement."

These two points form the whole, and very material it appears to be, of this supplementary patent. See further description and plate in the London Journal of Arts and Sciences for August, 1822.

The number for July 1823 of the Journal to which I have been so much indebted, and but for which I should not, as yet, have known of this addition to printing machinery, contains the specification and an engraving, of a machine equally complicated, and possessing about as great a portion of originality as the British and Foreign machine.

Mr. Bold, of West Street, Bermondsey, is the inventor. I have not been informed whether a machine upon the principle as described in the specification has ever been made, and if one has, I should doubt, till I saw it at work, the possibility, from the combination of such a multitude of parts, of its being effectual for the purpose: in fact, it appears rather a combination of various parts of all other printing machines for effecting the same purpose in a more complex manner. The impression cylinders seem destined to effect their purpose by their weight alone, which would be immense, as they "may be made of solid cast iron, or cast hollow, and filled with lead." I see no provision for that essential part of printing called *perfecting*, except guide-rollers and tapes, and delivering-boards with register-lines marked thereon; and this, I am very certain, will never answer the purpose for well-printed book-work.

After having occupied so many pages of this chapter with descriptions which, after all, will be but of little use without engravings it would only tire the reader's patience to go through the detail of "certain axles, toothed-wheels, pinions, pullies, wedges, screws levers, and chains," by which the operations of printing are to be effected. The novelty of this patent appears to me to consist in the machine having two pressing cylinders;* three inking troughs, with a suitable number of "ductors and feeding rollers placed between, and at the ends of the tables;" horses to hold the paper, capable of being raised or lowered by means of racks, and thereby adjusted to the varying height required as the paper is worked off; with delivering boards supported by brackets, and turning on pivots; on to which boards, over rollers, separate sheets of paper are brought, and registered by lines marked thereon: the board is

* A model was made some years ago by the ingenious De Heyne, which is now in the possession of Mr. Cogger, of a printing machine with *two plattens*. I always saw much merit in this machine, and really think, if the artist had lived and persevered, it might have been made a valuable piece of mechanism.

then let fall, and the sheet of paper suffered to hang from the roller until its edge is taken hold of by a small roller, and held against the periphery of the pressing cylinder; then, by a vibrating lever, the sheets of paper are, at the proper times, carried down to the pressing cylinder, and there held by guide-rollers and tapes. By the rotatory progress of the pressing cylinders, the sheets of paper are laid upon the surface of the types; and after receiving their impression, are conducted off, and raised from the tapes by an open frame or grating, whence they are taken by hand, and deposited in a heap at a distance from the engine. Again I refer to the Journal before-mentioned for an engraving and references.

Sir William Congreve, whose active genius never sleeps, and who both invents himself, and improves upon the inventions of others, has added, to an already numerous list, an invention of a printing machine. It is true that the application of the invention has, at present, been limited to the purpose of printing in two colours the stamp-duty mark on banker's promissory notes, and the stamps for the excise, &c. for the prevention of forgery; the machinery which constitutes the general principle of the invention seems calculated to execute surface-printing in one colour only: the principal variation from the general detail of other machines appears to be that the part of the cylinder under the paper where the impression is to be made, must be raised above the rest of the surface of the cylinder, by a blanket covered either with leather or parchment, which may be termed the tympan sheet, so that this raised part only comes in contact with the plate or types in printing, while the remainder of the cylinder in retiring rolls over without touching it, and is followed by three inking rollers, which having received their ink from the distributing plate, apply a fresh charge of ink after every impression. The sheet, when printed, is discharged by a roller, and is then carried away by the endless tapes or cloth, and deposited upon a table placed for that purpose at the end of the machine.

Thus far the operations of the machine in its simplest form for printing in one colour, comprehends "the improved mode of laying on paper; of inking the rollers from the distributing surface;

and of inking the plates from the rollers. Also, the subsequent printing and throwing off the paper where one colour only is used."

The operation of printing in two colours may be performed by a similar machine when furnished with certain additions which will be explained. For the attainment of this object, however, plates must be constructed of a different kind to those usually employed for printing, these are intended to be *compound plates:* that is, formed of sundry pieces,* which pieces are to be separately inked with different colours, and afterwards put together for the purpose of producing one surface from which the impression is to be taken. These compound, or dissected plates, made of such pieces as exactly fit into the interstices of each other, are to be placed in the machine so as to receive the ink separately, and afterwards be brought together. Their surfaces may be engraven or cast with any ornamental design at the will of the artist, and the operation of printing from them in divers colours be effected as follows :—

Suppose two colours are employed: instead of the forme of types, block, or stereotype plate, a compound plate of the kind last described is placed in that situation. One part of this dissected plate is mounted upon a block, sliding in grooves in the under part of the stationary frame, and connected by rods, or levers, to an excentric wheel, which is thus made to rise up, and occupy the interstices of the upper plate, and fall down again into its original situation for the purpose of being inked. Three inking rollers and a feeding roller, with an ink reservoir and distributing surface, must be placed in a situation to act upon this part of the plate, and

* Compound plates have long been applied to calico printing. In 1814, Mr. S. Marshall, of Streatham, Surry, obtained a medal from the Society of Arts for the invention. He attended the Committee of Mechanics, and "exhibited a block: it was a striped pattern, the stripes formed by slips of brass let into the wooden frame, certain parts of which slips can be made to rise to one level surface, or sink below it; so that if the black colour, for instance, is to be printed, the parts of the block which are to be used for another colour, are withdrawn within the block, and after the black impression is given, the parts to furnish the red colour are propelled forward, and the black withdrawn; the whole is easily effected by the turn of a screw. He also explained that by one block on this construction two different colours can be printed at one stroke."—*See the MS. Minutes of the Society of Arts for May*, 1814.

the rollers made to pass backwards and forwards with the sliding carriage. The excentric wheel is fixed upon the axle of the crank, which being grooved all round carries the roller as it revolves, and by means of its connection to the rods, or lever, causes the lower plate to rise and fall. Thus the two plates are separated for the purpose of inking, and are afterwards brought together, so as to coincide, and produce one surface. By these means, an impression in two colours is given to the paper, the operation of printing being the same as that described above for printing in one colour only.

The patentee observes, "From the foregoing description it will be evident that when three or more colours are used, the same process will apply merely by having an additional tier, or tiers of inking rollers, distributing surfaces, and plates; the raised parts of the lower plates intended to print the third, fourth, or other last colours, passing, as before, through interstices in the different plates above it, all these plates being connected to the table by jointed braces similar to those of a compound parallel ruler; so that all the plates may be duly opened to receive their different coloured inks as the table descends by the bending of the joints of the standard, and that they may be closed by its straightening again."

As there are many parts of this apparatus common to other printing machines, it is necessary to observe, that the claim of originality consists in the mode of taking on the paper by the moveable carriage; of carrying it forward to be printed, and afterwards discharging it by the combined horizontal and rotatory motion of the printing cylinder as effected by the horizontal frame; and by the rising and falling racks, whether in printing one or more colours; in printing in two or more colours at one impression by the compound plates; and the mode of inking the same separately, with different colours, and of uniting them to print these different colours at one impression; and in distributing the ink by means of surfaces revolving upon axes at right angles to the plane on which the inking rollers move. And the patentee also claims a variation of the above machine so as to enable it to print by the back as well as by the forward motion of the carriage, thus performing double the work in the same time.

In this last-mentioned contrivance, there are to be two printing

cylinders similar to the one above described, and moving on the one main carriage, but having two laying-on carriages, one to supply each cylinder at opposite ends of the machine; two sets of rising and falling racks; two sets of discharging bands; two revolving inking surfaces; two ink reservoirs and messenger rollers; and one set of inking rollers. Another variation of this printing press, when the formes or plates are at rest, and the printing cylinders in motion, is, that the two cylinders may be enabled to turn the paper from one to the other, and print on both sides of the sheet; in this case, however, the two formes must be at the extremities of the machine, and the two printing cylinders in the middle of it.

The specification concludes with these words: "the advantages of this system of printing machines when applied to the common printing in one colour, is, that, by having the forme stationary, and the printing cylinders in motion, those parts of the machine which are necessarily the heaviest are at rest, and those parts which are capable of being made the lightest are the parts moved; by which it is evident, not only that power is saved, and consequently increased rapidity obtained, but that the jar and wear and tear of the machine are much reduced. There is no doubt but that, by the double machine, forty impressions might be taken in a minute, without injury to the machine from its speed. When also this system of printing is applied to two colours, not only does this same advantage exist, but, by the apparatus here described, the most perfect and beautiful description of the register of colours ever devised is attainable."

This description, which I have extracted from the valuable Journal so often quoted, is therein more fully exemplified by an engraved plate answering to literal references throughout the description; and to which I here again refer the reader for further particulars.

Mr. Parkin, mentioned in p. 635 as the inventor and patentee of an inking apparatus, has a printing machine on hand, the progress of which I have watched with some interest; but as it has not yet got into actual work, I am not able either to give an accurate description, or to form a decisive opinion of its operation

or merits. The general principle is still the same as all preceding it. The forme (it is only yet constructed as a single machine) is laid on the carriage, impelled by a reciprocating movement under a cylinder (which in this machine is unusually small) to receive the impression. The inking process is the only decisive novelty; being the adaptation to the machine of the apparatus referred to above; and so far as the ink being distributed on a table, or plane surface, may perhaps be said to interfere with the patent of Applegath and Cowper; however, I dare say it will never be contested, for I never yet saw a printing machine which did not, in some part or other, bear a strong similarity with other inventions or patents for the same purpose; and they have thus become so involved in each other's ideas, that an inquirer has only to investigate the various printing patents from the time of Nicholson, and he may overturn the exclusive right, as a whole, to any subsequent machine.

Mr. Spottiswoode, who has for some time had a steam engine and printing machine upon the construction first-mentioned in this chapter, has also (impelled by the same engine) a machine of a new construction in one material respect, which possesses, in my opinion, the principle by which better work may be effected than by any of the others, but not with such rapidity. The impression is by a platten, moving vertically; it has a self-acting tympan and frisket; and appeared to me doing at the rate of six or seven hundred per hour, one side, in excellent style of work.

MR. HANSARD'S PRINTING MACHINE.

"The Nay-Peer."

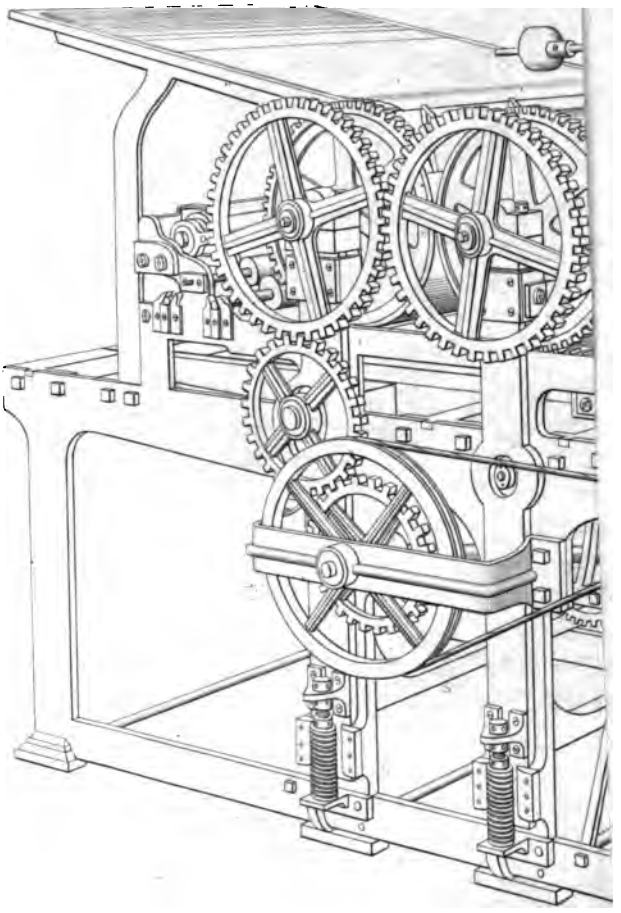
(Frontispiece to this Work.)

Mr. Napier's name has already occurred as the maker of machines for printing, in the instances of Rutt's, Dean's, and Treadwell's. I have now the satisfaction of bringing him forward on my own experience, as the inventor and maker of a machine which appears to me more likely to succeed in all its pretensions than any which has yet been offered to us; more particularly as it supersedes the necessity of steam power.

The motion of this machine is gained by two men turning a fly-wheel, which acts as the impelling power, and, although the same general principles prevail in this machine as in those already described (that is, as far as printing by cylinders and inking by rollers is concerned), yet, at the same time, it presents some novelties which are of too great importance to be overlooked.

The first consists in a most ingenious contrivance for taking hold of the sheet from the supplying board, retaining it while receiving the first-side impression, and releasing it at the precise moment that the corresponding apparatus in the other cylinder executes the same movement for the impression of the reiteration. This beautiful mechanism is contained in the interior of the impression cylinders, which have openings along their circumference, through which the *gripers* perform their operations, and upon their action depends that important desideratum of press-work, accurate register, or the backing of the pages on the paper, and this purpose is so fully effected, that from the many thousands of sheets which have passed through my machine, without the smallest deviation after register was made, I venture to call them, infallible.

Three (or more) pairs of these gripers working upon the same axis, are employed in each cylinder. At the moment the first, or white-paper impression cylinder arrives at the proper position the upper limb of each pair having been previously opened to relieve the



Drawn by Napier with his universal Perspectiograph

former sheet, and the boy having by this time laid another sheet to the appointed gauge, they again instantly close upon the advanced edge of the paper, without the velocity of the machine being in the least interrupted for that purpose; the sheet is by this means wrapped closely round the periphery of the cylinder, and there retained while it receives the impression on one side, after which, and upon the arrival of the cylinders, or rather the gripers contained in the cylinders, at their proper position (that is, where the cylinders present a tangent to each other), and whilst passing this point, the gripers contained in the second cylinder take hold of the sheet close by the others, whilst they at the same instant release their hold, and the sheet is, in like manner, conveyed round the second cylinder to be perfected or receive the impression on the other side: the instant this is effected the gripers again let go their hold, and the sheet, printed perfect, or on both sides, is discharged from the machine to the receiving board, by the action of pullies and two fine cords, so that one sheet is going into the machine and another coming out at the same instant.

Yet, notwithstanding the beauty and accuracy of this movement, the part, of all others, that reflects the highest credit upon the mechanical skill of the inventor is the rising and falling of the impression cylinders, for it is principally owing to this singular contrivance that he has been enabled so wonderfully to compress and simplify his machine as to bring it within the capability of so small a power to produce so much work; it is this which admits of the cylinders being made of the size represented, and placed so close to each other as to be enabled to turn the sheet, and perfect, without the intervention or assistance of any other cylinders, for no sooner has the first cylinder given its impression than it instantly rises up, to avoid coming in contact with either of the formes until it is again its turn to impress or print; while at the same instant the second cylinder descends for the purpose of giving the second impression. Thus the cylinders are alternately rising and falling during the whole progress of working; and it may be curious to observe that when down they are firmly held in their positions while they give the impression, and until their time arrives to be disengaged, and rise again; these cylinders are easily adjusted to any required degree of pressure, and that

even without interrupting the progress of the machine; and the inking apparatus, of which there is a set for either forme, is provided with various important contrivances which fully answer every purpose required in that indispensable part of the operation of printing.

My machine has had a trial of six months:* its ordinary speed is, according to the required quality of the work, at an average of two thousand impressions, or one thousand perfected sheets per hour, but is capable, by exertion, of doing much more; the speed, in fact, is only limited by the time necessary for the boy to lay the white paper to the gauge, or mark, and the power which the men are capable of exerting who turn the wheel, the labour of which is considerable if followed up at more than one thousand per hour. I have, therefore, three men to turn, in order that each one may be alternately at rest, or sitting to receive and lay even the printed sheets as shot from the cylinder; thus every man of those three has twenty-minutes' relief in each hour. Another man of more intelligence acts as foreman, or overlooker, whose business it is to attend generally to the machine and workers, place the paper by tokens on the supplying board, and take away the printed sheets from the other end: a little boy performs the business of the layer-on, but which requires very considerable precision, as the rapidity of the machine will be interrupted if his attention is in the least degree diverted; if any corner should be doubled, or otherwise require particular time for placing, he will be obliged either to throw it to one side, or to cry out "halt," and the machine must stop; it is, therefore, very necessary that the paper should previously have been turned and pressed and laid very even; should a sheet escape by being laid improperly for the gripers, it is liable, instead of being carried round the cylinders, to be dropped upon the forme, from whence it will be conveyed to the inking rollers, and, from its adhesion to the substance and the ink, will take some time in being stripped off, and some care of the overlooker to get the roller properly covered with ink to proceed as before, which is simply done by passing through the machine two or three waste sheets, till the roller has regained its proper degree of colour. I have a power in my machine of adding an additional roller to the inking apparatus at each end, which I apply

* (November, 1824.)

when particularly good work and fine ink are required; but this causes a great increase in the labour.

This machine occupies but very little space, about 5 feet by 10, or not more square feet than a common press, bank, and ink-stand; but, although thus compact, it contains a vast quantity of extremely curious mechanism, and would require a very lengthened description to give a perfect understanding of its various parts and movements, but it is hoped that the distinct and accurate perspective view in the front of this work, will serve to make up that which is deficient here.

Mr. Napier has also constructed several machines upon the same general principle as mine, for newspaper-work; to print from only one forme, and that either with one or two cylinders; but these not requiring to reverse the sheet have none of the mechanism for perfecting; the paper is taken from the supplying board by an apparatus called the feeding bar, and conveyed round the cylinders by tapes; those with two cylinders possess double the speed of those with one; for, having the inking apparatus in the centre, the type is inked and an impression is taken both in the motion to and fro, being supplied with paper at both ends from boards at the top of the machine, which, when printed, is discharged underneath the supplying boards; of course it is calculated that one forme shall be ready and worked before the other, and the machine at liberty for perfecting, otherwise a second machine must be employed. The Morning Post, the News, &c. are printed by the single cylindrical machine, called the Imperial Printing Machine. The Courier, the British Traveller, &c. are printed by the two cylinders, called the Double Imperial Printing Machine; of the speed of these two machines, as compared with my own, experience does not enable me to speak; but I have reason to believe that they give ample satisfaction to those by whom they are employed; for the Proprietors of the News, Sunday-paper, in an article addressed to their readers, December 8th, 1822, publicly declare, "that now they are enabled, without any extra exertion, to work off from 1200 to 1500 in the hour;" and the Courier of November 14th, 1823, says, "We think it right to announce to our readers, that the Courier is now printed by a machine of such extraordinary mechanical power, that it is capable of throwing off considerably above *two thousand* papers per hour; it has, indeed,

on one occasion, produced at the rate of 2880 impressions within the hour." Both of these speak of the single machine, and reckon by one side only; so that in each case, a second machine must be employed to perfect, or print on the other side. The power of one man is sufficient to turn these single cylinder machines; but two are kept, who relieve each other at short intervals.

After all, in the great variety of forms, and qualities of work passing through any printing-office, recourse must still be had to the aid of good manual presses and experienced pressmen. The serious expense of a printing-machine* can only be repaid by executing an extraordinary quantity of work in a much less portion of time than that usually occupied for the same work done by ordinary means. As, therefore, the time consumed in laying-on, or making ready a forme, must be valuable in proportion to the number of sheets which might be struck off in that time; so, frequent repetition of the previous process for short numbers would counterbalance all gains arising from the speed in working. Machine printing will therefore be only applicable to works of extensive sale. But those of which limited numbers are printed; those also requiring a superior description of press-work, with fine ink; fine, and large paper, copies, with alterations of margin; and many other peculiar circumstances which are continually occurring, will always require a judicious choice of men and materials, for the old mode of working, varied as circumstances may at the moment require. Half-sheet work, or jobs printed on one side only, are either impracticable or disadvantageous at a perfecting machine.

* Between six and seven hundred pounds.

ON PRINTING INK.

CHAPTER VIII.

First Improvements in Ink, by Baskerville, in 1760—*Mr. Bulmer,* 1790—*First Manufacture for Sale—Mr. Blackwell—Mr. Thomas Martin—Martin and Grafton of Birmingham—Secrets of Ink-making—The Black—Qualifications of Good Ink—Receipt for making Baskerville's Ink—Of the Varnish; Dangerous Process—Receipts for Black Ink and Red Ink—French mode of making the Varnish, Blacks, and mixing for Ink—Mr. Savage's Receipt—Coloured Inks—Observations on the Colour to be kept up—Specimens of Qualities—Mr. Griffiths, and other Makers.*

IN speaking of this preparation, so essential, as regards its quality, to good printing, it is my intention to go somewhat more into detail than any of those who have hitherto written on the subject of printing. Notwithstanding all the efforts which have been made in this country, there is still a wide field open for further improvement in this article, and though many makers have from time to time started into notice, none of them have been hitherto fortunate enough to attain perfection.

Mr. Beale Blackwell was the first maker of ink of any note in this country; he established considerable works for the supply of the trade, and for a long time kept all competitors at a distance:* at length Messrs. Martin and Co. erected their works at Birmingham, and it is but justice to those gentlemen to say, they have been the means of making greater improvements in the manufacture than any who preceded them. The writer of this has tried most of the inks which have been recommended to the trade, from a desire of

* The manufactory established by Mr. Blackwell (of whom see p. 283) is now carried on by Mr. Colvil, who was in partnership with him for some years.

encouraging competition and finding a better article, but has constantly found those trials only confirmatory of his opinion in favour of that supplied by the firm just mentioned, and is perfectly willing to let his credit, in his profession, rest upon the use of their ink, in competition with any ink, or improved ink, made in this kingdom.

In the address they circulated in January 1817, they observe :—"The Art of Printing having, within a few years, arrived at a point of excellence unattempted at any former period, it may seem surprising that so essential an article to its beauty as Printing Ink should have so long remained in an unimproved state. It is, however, indisputably true, that this preparation has been found in numerous instances very defective; the ink frequently, from its tenacity, tearing off the fibre of the paper, and thus causing picks; at other times not drying properly; and still more frequently, from the impurities and imperfect combination of the oil and black, running on the paper and turning it of a yellow colour, thus destroying the excellency of the work, which, in every other respect, may have been executed with the greatest care.

"In the hope of avoiding these defects, which it is utterly impossible the printer should foresee, and of producing an ink, that, while it combines beauty and richness of colour, is calculated to bring off a clear impression from the finest shades of wood engraving, we have had recourse to numerous experiments, many of which have been of an expensive and troublesome nature. From the facility we possessed (being printers) of trying the products of these experiments, we were the better able to form a decided judgment as to the results—that we have succeeded, its extensive use must now fully evince," &c.

These observations prove them to have a knowledge of the requisites of the art they are practising, and though they have not hitherto attained the absolute perfection to be desired, still they may be fairly said to stand foremost on the list of competitors.

Few printers, of any eminence, in this country attempt to be entire makers of their own ink,* the improvement of the manufacturer's ink being the most that has been attempted by any printer of much practice, with the exception of Mr. Bulmer, and this has

* Even those who make their own ink are glad to obtain the black of the manufacture now spoken of.

been effected by re-grinding, or mixing, the article with such additions as they thought might give a better colour, or a tint more congenial with their taste. I do not pretend to be possessed of their secrets—I never could perceive any such difference in that quality of their work as to induce me to bestow a single hour in trying experiments to find them out: nor, if I knew them, would I practise them. I believe, some few years ago, the article manufactured for sale was at so low an ebb as to make it desirable to try any means of improvement: the matter is now reversed, and if I wanted ink to have the purpleish blush which has by some been fancied as adding beauty to printing, I could have it immediately made to my mind. But that is not my idea of fine printing: black, as perfect as blackness can be, is, in my judgment, the true criterion of good ink. The lamp-black of commerce is too coarse and impure to effect this, as the manufacture has, for a long time, been confined to individuals who have had more profitable speculations in view, and who only made the article to get rid of the refuse substances lying about their works, without any attention to quality or cleanness, quantity being the principal object of those who are thus engaged.

Black, in this impure state, for a long time satisfied the makers of printing ink, which, during a period of nearly 200 years, received little or no further improvement, and it was not until the days of the celebrated Baskerville, as mentioned in a former part of this work, that any attention was turned to this most essential article. His scrutinising eye was always on the search after improvement, and his mind, quick as his vision, ready to mature the first idea. It was reserved for him to discover, after such a lapse of time, a superior kind of black for the purpose required, and to this success may be attributed, in a great measure, the superiority of his printing, which is still justly admired, even in the present further improved state of the art. His success gave a stimulus of rivalry to others in the trade, and a few, out of many, attempts, were in course of time partially successful.* Some added indigo or prussian blue to the common ink of the makers, and thus considerably improved their colour; but the difficulty of working inks containing these pigments, and the impossibility of bringing off

* That Mr. Blackwell succeeded is clearly shown by the works I have mentioned as being printed by Mr. Ritchie. See p. 610.

clear impressions from wood cuts or small type, without very considerable labour and great loss of time, were such drawbacks on the improvement as to render it almost useless. Other printers procured samples of black from the continent, and, in some few instances, succeeded in finding a better colour; but the imperfect knowledge possessed by the printer of the entire art was always a stumbling block in these experiments too difficult to be entirely overcome, and though he might succeed in one point, a fresh obstacle generally arose to thwart him in another.

Thus the discovery of Baskerville, of about the year 1760, lay dormant from the time of his death till 1790, when, through Mr. Robert Martin of Birmingham, his apprentice, and afterwards his foreman, a considerable quantity of this fine black, which had been collecting, for a length of time, from the glass-pinchers' and solderers' lamps, was bought by him, at an almost unlimited price, and was supplied to Mr. Bulmer for his experiments in fine printing. But the difficulty of obtaining any regular supply by these means, and the adulterations practised by the workmen when they found a demand for the article, induced Mr. Bulmer to erect an apparatus for the purpose of making it, for his own use; and he succeeded in producing a very superior black. The slow process, however, by which it was collected, and the unpleasantness of the business, rendered it impossible to supply any considerable quantity of ink even by this mode, without going more largely into such a concern than he ever intended, and interfering with the object he had most at heart, the improvement of his own profession: quality, however, being the sole object of Mr. Bulmer, and having made sufficient to supply his own consumption, he may be said to have succeeded to the extent of his wishes.

I have lately had an opportunity of examining, with most particular attention, the effect, at this day, of the ink made by Mr. Bulmer for his Shakespeare and Milton, printed in the years 1792 to 1801; and also of a small work less known, but more exquisite perhaps than either of the above, namely, *Forster's Anacreontis Odaria*, 1802.* The most anxious scrutiny cannot,

* Ornamented with vignettes after designs by Miss Bacon (now Mrs. Forster). A few copies were taken off on French paper; and certainly nothing ever excelled the beauty and clearness of these impressions. While regaling myself by an inspection of this master-piece of press-work, I really lamented

in these works, find the least appearance of failure of that beautiful velvet richness of colour which the ink originally possessed. Of the whole nine volumes of his Shakespeare, from the first volume to the last, being as many years in hand, the same harmony of tint and richness of colour prevail as if the ink had all been made at one time, and the last sheet inked by the same hand in the same hour as the first; this single work probably comprises more pages than all that Bodoni ever printed.

But the finest criterion by which to judge of the perfection of ink and work is offered in the volumes printed by Mr. Bulmer of DIBDIN'S DECAMERON: the numerous wood engravings in which the ground is an entire black,* and others with parts of the figures black on white ground,† exhibit such an evenness and intensity of colour, as nothing but ink of the most perfect compound for the purpose could effect; much, of course, must have been owing to the aid of good and congenial quality in the paper, and ensured in effect by the experience and skill which Mr. Bulmer was so competent to impart to his workmen; and that a great deal must have depended upon, and been effected by, the two last-named requisites, is very apparent from his being able to produce the same effect in ink of another colour, namely, red.‡ Yet every one, judge or no judge of typography, must at once see the extreme difficulty of covering so large a surface with entire colour, while the small type, on the same page, has no surcharge of colour, but is worked equally clear with other pages consisting wholly of type. The same perfection of printing has been continued in the Bibliotheca Spenceriana, and Mr. Dibdin's Typographical Tour, although I must venture the opinion that the Spenceriana is somewhat inferior to the others; but which may have arisen, if the ink was the same, from the paper having had a *dash* of those *improvements* in paper-making which I have so often been hinting at—and something more from that mixture of type of various sizes, and that want of strict conformity of proportions and fashion, which I have mentioned as a great characteristic of beauty in the works of the continental printers.§

that Mr. Bulmer had placed the usual Arabic printing figures at the head of each page as folios; for, had they been absent, I could have fancied the Greek type to have been copper plate of exquisite workmanship.

* See vol. iii. pp. 14, 27, 37, &c. † Ibid. 42, 43. ‡ Ibid. pp. 16, 17, 50.

§ See Introduction, p. 316.

Every printer may easily conceive that the business of ink-making must require very great attention, and can never be advantageously carried on where the mind is divided between two distinct and laborious pursuits; if, in a few instances, the desired object has been partially attained, yet it has always been at an expense bearing hard upon the individual, and only to be repaid by printing works of unlimited cost.

About this period the rage for ink-making became common among the printers, from the success of Mr. Bulmer; this may be easily accounted for by the total neglect of the individuals who then had the trade in their hands, and who, up to this time, never attempted to make any advance towards improvement, but retained the same apathy and indifference as if their own art had been perfect; they rather threw obstacles in the way of others than endeavoured themselves to surmount the acknowledged defects. This negligence gave rise to considerable dissatisfaction between the master-printers and ink-manufacturers; and thus an extensive field was thrown open for competition, and several new ink-makers started at a time when they were almost certain of encouragement.

Among these competitors, Mr. Thomas Martin, nephew of Mr. Robert Martin, above-mentioned, a printer of Birmingham, appears to have been the most successful. His early knowledge of the trade, gathered from his uncle, gave him an advantage which none of his competitors possessed, and he soon produced an ink of very superior colour. This was only effected by his following up the system of Mr. Bulmer and making his own black, which he did for a considerable time from fine lamp oil, the smoke being collected in a variety of glazed earthen vessels made for the purpose and connected together, communicating at last with one common receiver. Still the slow process of producing it by this method, together with the increasing demand for fine inks, induced him to go to very great expense in experiments and in erecting various apparatus for the manufacture. In pursuing these labours he discovered several modes of making black, of a quality superior to any in the market, from materials not before used: his success thus far proved the principal means of introducing him to the trade; and the still-increasing demand for fine inks has since that time induced him to erect very extensive works for the making of fine black upon new and improved principles, on one

of which he, in conjunction with his partner, Mr. Grafton, has recently obtained a patent; for the particulars of which see Repertory of Arts, vol. 43, p. 257.

Of the fine black manufactured by them I have now some before me, and have no hesitation in pronouncing it the finest smoke-black made in this country. I understand it is produced from coal gas, burnt in a peculiar way, and the smoke collected in a similar manner as for the spirit-black described in their patent. The complex nature of this apparatus, and the great extent of building requisite to carry on the same, render it impossible to give, by verbal description alone, any clear idea of this manufacture, nor indeed would it be right to lay open to the world an invention which has cost so much expense, time, and labour to perfect.

From these persevering exertions in the pursuit of this art, I am induced to hope the profession will be supplied with superior inks, calculated for the various purposes of the press, combining beauty and richness of colour with clearness of impression, and freedom of working with quickness of drying, in quality so much improved, and at prices so much reduced, as totally to obviate the necessity of master-printers employing a portion of their valuable time, and risking the safety of their property, in the pursuit of an art that but few can attain, and if attained, where they have so much to risk and so little to gain.

In throwing out these observations to the trade, which I have been induced to do from motives of general utility, I would not be understood as wishing to damp the ardour of the speculative mind, or crush the spirit of inquiry in the pursuit of perfection; but I would suggest the advantages which might be obtained, if the printer and ink-maker would go hand in hand in their research after improvement, instead of endeavouring to render every part of their respective knowledge mysterious and undefined. There is likewise a second and more powerful motive for this union, as it would tend to do away that system of bribery and corrupt influence carried on between the ink-maker and the journeymen, and now become so prevalent in most printing-offices as to amount to an actual demand of a five, and frequently of a seven and a half, per cent on the consumption. This growing evil requires the immediate attention of the trade, as all must be aware no manufac-

turer can sacrifice so large a portion of his fair profits, and, consequently, that he must materially reduce the quality of the article manufactured, to meet this imposition.

Having said thus much of the progress and improvement of the art, it only remains to make some general observations on the article itself and its proper application.

Good ink requires the possession of a variety of qualities, some of which seem to be at variance with each others. By the fineness of the black, the softness of the varnish, and the power of the mill in triturating and mixing the ingredients, it should be made perfectly impalpable. To the eye it should appear of a clear black tint; not glaring or glossy, nor yet so mellow as to want an agreeable tone and strength of colour. The finer sorts should be made of that degree of stiffness, that the same inequalities of surface, even to fine pointed hillocks, and twisted forms, will be found to have retained their shapes, if the can had not been opened for twelve months after any part was taken away by the ink-slice; neither must it form any film or skin, or suffer any decomposition of its parts. Yet it must not have any tendency to dry while kept in the can or cask, or be too cohesive for distributing with tolerable ease on the balls or rollers. It must have such an affinity to the paper, as to adhere firmly to the surface from the moment it receives the impression; but it must not possess such tenacity as to remain upon the face of the type, and tear off the fibre of the paper, which would then be gathered upon the balls or rollers, and again conveyed to the type, filling up the face, and casting little blots, technically called picks, upon the subsequently printed sheets; but much of this must depend upon the texture of the paper.*

Various receipts have at different times been published on this subject, but none that I have hitherto seen seem calculated to produce the effect; it would be therefore a folly to insert them here: the one I shall introduce, which has never before been published, has been given me as the mode practised by Mr. Baskerville, which a careful examination of his printing will fully prove to have stood the test of time.

* I would here wish the printer to notice particularly this point, as inks are too frequently complained of as being foul and gritty, and the ink-maker condemned, when it is wholly caused by the tenderness of bleached and cotton paper, and the earthy particles used in its manufacture.

He took of the finest and oldest linseed oil* three gallons, this was put into a vessel capable of holding four times the quantity, and boiled with a long-continued fire till it acquired a certain thickness or tenacity, according to the quality of the work it was intended to print, and which was judged of by putting small quantities upon a stone to cool, and then taking it up between the finger and thumb; on opening which, if it drew into a thread an inch long or more, it was considered sufficiently boiled. This mode of boiling can only be acquired by long practice, and requires particular skill and care in the person who superintends the operation, as, for want of this, the most serious consequences may occur, and have very frequently occurred.† The oil thus prepared was suffered to cool, and had then a small quantity of black or amber rosin dissolved in it, after which it was allowed some months to subside; it was then mixed with the fine black, before named, to a proper thickness, and ground for use.

This method, with very little modification, I have every reason to suppose, was pursued by Mr. Bulmer in the making of his ink

* The linseed oil generally in the market, is totally unfit for the purpose of ink-making, being too frequently mixed with seeds of an inferior, drying, quality, or expressed from those which are damaged or unripe, and very often overheated in the steam-kettles in order to force out an additional quantity of oil; this excess of heat invariably causes a large portion of the mucilage to combine with the oil, and till that has subsided it is unfit for use. This mucilaginous combination is, in fact, more or less in all seed oils, which renders it necessary they should stand a very considerable time to subside, before being converted into varnish, which can only be regulated according to the quality of the oil, but in no case should it be used before twelve months old, and if kept longer will be considerably improved: good oil may, in some measure, be known by its appearance, the best being of a pale straw colour. This varnish, after being brought to its proper consistence, requires to stand for at least two months, that the decomposed mucilage and other matter may subside to the bottom, it will then be fit for use. Some makers add to their varnishes boiled turpentine; others rosin, and, not unfrequently, soap; these are useful in some instances, particularly in rendering the type easier to be cleaned, as, without something of this kind, the ink will be difficult to wash off, but only in this particular can they be of service.

† If flame once communicates to the oil in this state, nothing can extinguish it but instantly closing the pot or vessel, so that no air can draw in to feed the flame. One of the most tremendous fires that happened in this metropolis a few years since was thus occasioned; no making of varnish should ever be attempted within the walls of a printing-office.

for the Shakspeare and some other fine works printed in the early part of his practice: and I have it from the best authority, that when the boiling of the oil is properly managed and the black well mixed and ground, no finer or better working ink can be made.*

* In Rees's Encyclopædia is given the following receipt for making ink:—

"*For Black Ink.*—A hundred pounds of nut or linseed oil, being reduced, by boiling, to the consistence of a syrup, are cleansed and purified by throwing into them two pounds of coarse bread, and about a dozen onions. Nut oil is supposed to be the best, and is accordingly preferred for the black ink, though the darker colour which it acquires from the fire makes it less fit for the red. This oil is boiled in an iron pot, capable of holding at least half as much more, because it swells very much; when it boils it is kept stirring with an iron ladle; and if it does not itself take flame, it is kindled with a piece of lighted paper, or burning wood, in order to increase its consistence and tenacity, and to diminish its greasiness. The oil is suffered to burn for half an hour or more; and the flame being then extinguished by covering the vessel close, the boiling is afterwards continued, with a gentle heat, till the oil appears of a proper consistence; in which state it is called varnish; of which there should be two kinds, one more and another less boiled; or a thicker and thinner, to be used for different purposes, and in different weathers. The oil is said to lose in being boiled into thick varnish from a tenth to an eighth part of its weight; but different oils, and perhaps the same oil in different states, differ in this respect. The design of adding the bread and onions is more effectually to destroy the greasiness; but Dr. Lewis doubts, whether additions of this kind are of much use. They then boil thirty or thirty-five pounds of turpentine apart, till such time as they find, upon its cooling on paper, that it breaks clean, like glass, without pulverizing; for if it pulverize easily, it is a sign it is burnt. The oil and turpentine being thus prepared, the first is gently poured, half cold, into the latter; and the two stirred together with a stick till they be well mixed: after which the boiling is repeated and the composition is set by, to be used occasionally. The turpentine is used in order to give a greater body to the varnish, and to increase its drying quality; and with some artists, litharge has in this intention been a secret. M. le Breton, in the Encyclopédie, observes, that when very old oil is used, neither turpentine nor litharge are needful; but that when the oil is new, some turpentine ought to be employed, because, without it, the smearing of the paper, by the spreading or coming off of the ink, cannot be avoided; and he adds, that it is much more eligible to use old oil than to have recourse to this correction of the new: both turpentine and litharge, particularly the last, making the mixture adhere so firmly to the types, that it is scarcely to be got entirely off by the ley, whence the eye of the letter is soon clogged up.

"Now to proceed to make ink, they take a quantity of this mixture, and add to it a certain quantity of lamp-black, working it up with a kind of

Mr. Savage, in his work on Decorative Printing, recently published, would seem to contradict this theory, as he insinuates that

---

wooden mallet, or brayer, till the whole be incorporated, and reduced into a kind of pulp; which is the ink for use.

"Where, note, that its thickness or strength is always to be proportioned to that of the paper, and the warmth of the weather; strong paper and hot weather, requiring strong ink: and that the strength or weakness of the ink depends on the greater or the less degree of coction of the varnish. According to M. le Breton, two ounces and a half of the lamp-black are sufficient for sixteen ounces of the varnish.—*Lewis's Commerce of Arts*, p. 371.

"*For Red Ink*, they use the same materials as for black, excepting only, that instead of lamp-black, they add a proper quantity of vermilion. Some hold, that, by mixing and incorporating the bigness of a nut of fish-glue, or brandy, or the white of an egg, with the ink, the vermilion acquires a greater lustre."

In the French "Printer's Manual" much more precise directions are given for the general manufacture of ink than I have any where else met with; embracing the various processes of making the varnish and the black; describing minutely the apparatus for obtaining the latter; and the various accidents, with means of avoiding them, to which the various processes for preparing the former are liable: these descriptions appear altogether so useful for situations where a regular manufacturer is not at hand, that I am induced to add them, in the original, to this chapter; for a translation would be exceedingly difficult, owing to the numerous technical terms employed, and the peculiar names given in the designation of some articles, for which no corresponding words or phrases are used in the English language.

I certainly do not calculate upon such a description of the process of ink-making being of so much utility as it may be of curiosity, to printers in general, or perhaps to any English printer; but to others situated where they cannot have immediate communication with a metropolis, or trading town, where the article may be procured ready made, or the articles of which it is compounded, he may be obliged to unite also the trades of varnish-maker, black-maker, turpentine-maker, and so on: and in such a case, the French terms might be more easily comprehended than if rendered by English phrases and technicalities.

"*De la manière de faire le Vernis pour la composition de l'Encre d'Imprimerie.*

"L'Encre d'imprimerie est composée de deux choses; savoir, du vernis et du noir de fumée. Pour faire ce vernis, il faut prendre un pot de fer ou de cuivre; il y en a qui en font faire exprès, large par le bas et étroit par le haut, avec des anses à côté, pour y passer un bâton à travers afin de le transporter d'un lieu à l'autre. Le couvercle de ce pot doit être bien juste, afin d'étouffer le feu lorsqu'il prend à l'huile qui est dedans.

no ink can be depended upon where oil forms the base of the varnish; he has, in consequence, pointed out a new mode of making ink, entirely divested of oil; namely,

Balsam Capivi	9 oz.
Best Lamp-Black	3
Prussian Blue	1½
Indian Red	¾
Turpentine Soap dried	3

" On doit remplir ledit pot un peu plus d'à moitié d'huile; car si on en mettait davantage, il serait à craindre qu'elle ne versât dans le feu, parce que l'huile s'élève toujours à mesure qu'elle s'échauffe; c'est à quoi il faut faire attention, de crainte qu'il n'arrive quelque accident, comme nous le dirons ci-après.

" Il n'y a que deux sortes d'huiles qui soient propres à faire le vernis; savoir, l'huile de lin, et celle de noix; quant aux autres, elles ne valent rien, attendu qu'elles sont trop grasses; ce qui fait que l'impression macule, quand on vient à la battre, et jaunit à mesure qu'elle vieillit; cependant on se servait autrefois de l'huile de navette et de chanvre, mais c'était dans des imprimeries où on ne fesait que des Almanachs et d'autres semblables brochures, dont on ne se souciat point que l'impression fût belle, pour la donner à bas prix.

" Ayant ainsi rempli le pot de la quantité d'huile que nous venons de dire, on y fait du feu clair, de même que dessous un pot dans lequel on fait la soupe; jusqu'à ce que l'huile soit bien échauffée, et que le feu soit en état d'y prendre; c'est-à-dire, pendant deux heures, ou environ.

" Dans le commencement on y jette une croûte de pain, afin de dégraisser l'huile, laquelle on ne doit ôter qu'après qu'elle est convertie en charbon; et sitôt qu'elle est ôtée, on doit faire cuire l'huile à petit feu encore l'espace de trois heures ou environ, après lequel temps, pour savoir si l'huile est assez cuite, on trempe une cuiller de fer dans l'huile, et on en laisse tomber quelques gouttes sur une ardoise ou tuile; et sitôt que ces gouttes sont refroidies, on touche cette huile avec les doigts; si elle est gluante et qu'elle tire à peu près comme de la faible glu, ou comme si c'était de petits filandres qui s'allongent à mesure qu'on ouvre les doigts, c'est une marque évidente qu'elle est assez cuite, et qu'elle change son nom d'huile en celui de vernis: si elle ne fait point cet effet, on la doit laisser sur le feu, jusqu'à ce qu'on voie les signes susdits.

" Le vernis étant ainsi fait, on le laisse refroidir dans le même pot, jusqu'au lendemain; ensuite on le verse dans quelqu'autre vaisseau, pour en prendre lorsqu'on veut faire de l'encre.

" Comme il pourrait arriver que le vernis serait trop fort pour faire l'encre en hiver, on doit, par précaution, en tirer un pot, plus ou moins, selon le besoin, une heure après qu'on aura tiré la croûte de pain, afin de pouvoir

These ingredients, when ground, seem to have formed an ink of good colour, as exhibited in the body of his work; but on a care-

---

affaiblir celui qui serait trop fort; et on se sert aussi de celui-ci pour imprimer les images en taille-douce.

" On doit cependant remarquer que cette huile qu'on tire doit être passablement cuite; car si elle ne l'était point, elle jaunirait l'impression, la rendrait pâteuse, et la ferait beaucoup décharger à la retiration; c'est ce dont on s'appercevra, en cas que les balles ne tirent point; et à quoi il faut faire attention.

" Comme il peut arriver que le feu pourrait prendre dans le pot où est l'huile, principalement lorsqu'elle commence à se convertir en vernis, il faut prendre les précautions suivantes :

" Sitôt qu'on aura mis le feu dessous le pot où est l'huile, on doit prendre des emballures qui sont ordinairement de grosse toile, et les tremper dans l'eau; ensuite les plier en quatre ou cinq doubles, les bien tordre, et les laisser égoutter, afin que quand on voudra s'en servir, il ne tombe point d'eau dans l'huile; car cela serait capable de la faire élever, et en danger de ne pouvoir éteindre le feu qui serait dans l'huile.

" On doit avoir un bâton tout prêt pour transporter le pot, en cas que le feu vienne à y prendre, afin de ne point chercher après les choses nécessaires quand cela arrive, de crainte que le feu ne vint à augmenter si fort qu'on ne sût plus comment l'éteindre.

" Quand on voit que l'huile s'échauffe beaucoup et qu'elle veut sortir hors du pot, ou que le feu est dedans, on doit incontinent couvrir le pot de son couvercle, passer le bâton à travers les anses, et le transporter dans la cour; et si c'est dans un jardin qu'on fait bouillir cette huile, on le transportera un peu éloigné du feu, en observant de le porter de manière que la flamme qui sortirait par quelque fente du couvercle, n'incommode aucun de ceux qui le portent. On doit le poser tout doucement à terre de crainte de le renverser.

" Lorsqu'on aura ainsi posé le pot par terre dans une place bien unie, on doit ôter le couvercle avec un bâton, de crainte de se brûler par la flamme, et laisser brûler hardiment l'huile; mais si elle voulait sortir hors du pot, on doit de suite remettre le couvercle dessus; si cela ne suffit point pour l'éteindre on peut jetter les emballures dessus, de manière qu'il ne puisse point y avoir d'air, et le laisser ainsi jusqu'à ce qu'on voie sortir une fumée noire et épaisse à l'entour du pot; ce qui se fait en moins d'un demi-quart d'heure de temps; et par cette précaution on n'est point en risque de se brûler, ni contraint de renverser le pot, comme il est arrivé à plusieurs personnes, faute de prevoyance.

" Il y a des imprimeurs qui soutiennent qu'il est nécessaire de mettre de la térébenthine dans l'huile, disant qu'elle rend l'encre plus forte, qu'elle empêche que l'impression décharge, et qu'elle sèche plutôt; tout cela est incontestable, mais ils ne prévoient point les accidens qu'elle peut causer; c'est ce que nous allons faire voir.

ful examination of its general appearance throughout the whole, it carries evident marks of not distributing well, or spreading freely

---

" 1° Quand on ne fait point cuire cette térébenthine précisément comme elle doit l'être, pour la mêler avec l'huile, elle rend le vernis si fort et si épais, qu'il déchire les feuilles de papier sur la lettre de la forme ; de sorte qu'elle est remplie en fort peu de temps.

" 2° Quand même la térébenthine serait cuite comme il faut, il suffit de dire que c'est une matière semblable à une pâte fort liquide, et qui est remplie comme des petits grains de sable, qui ne se démêlent presque jamais avec le vernis, et restent au fonds du pot; de sorte que quand on vient à se servir de ce vernis, on ne doit point être étonné si tous ces petits grains remplissent quantité de lettres de la forme.

" La térébenthine se cuit séparément dans un pot, lequel on doit absolument faire bouillir dans une cour, parce que le feu s'y prend trop facilement, et qu'il est trop difficile à éteindre. Quand cette térébenthine aura été sur le feu l'espace de deux heures ou environ, on trempe un morceau de papier dedans, et si elle se brise net comme la poussière, sans qu'il ne reste rien attaché dessus, en frottant ce papier sitôt qu'il sera sec, c'est une preuve que le térébenthine est assez cuite. Alors on éloigne du feu le pot où est le vernis, pour mettre la térébenthine dedans. Ce mélange se fait en remuant le vernis avec la cuiller de fer, ensuite on remet ce vernis sur le feu l'espace d'un quart d'heure, en remuant dans le pot avec la cuiller de temps en temps, afin que le vernis se mélange bien avec la térébenthine.

" Ceux qui ne voudront point se servir de térébenthine, pour les raisons que nous venons de donner, pourront prendre leur provision d'huile d'une année a l'autre ; car plus elle est vieille, plutôt elle est cuite, et par cette précaution le vernis n'est point sujet à maculer l'impression.

" *De la manière de faire le Noir de fumée, et de son mélange avec le Vernis, pour faire l'Encre d'imprimerie.*

" Le noir de fumée est la fumée de la poix-résine brûlée qu'on ramasse dans une petite chambre bien fermée et tapissée de peau de moutons à l'entour, d'où après on le fait sortir en les secouant ; mais comme il est dangereux de mettre le feu à la maison, il est plus à propos de faire ce noir dans une tente, un peu éloignée de la maison, dessous un toit de tuiles.

" Ceux qui font continuellement le noir de fumée appellent cette tente *le sac-à-noir*, lequel est construit de quatre petits soliveaux de trois ou quatre pouces en carré et de sept à huit pieds de haut, soutenus par deux travers de bois à chaque côté, savoir un en haut et un en bas, tout de même que si c'était un bois de lit, avec une petite porte pour y entrer en se courbant un peu.

" On peut faire ce *sac-à-noir* aussi grand que l'on veut, le dessus de ce *sac* est un plancher, qui doit être bien joint ; il y en a qui font un plancher dessous : mais de crainte que le feu y prenne par quelqu' étincelle, il est plus

on the types, and being equal to the quality of the paper. This I have no doubt will be found the case by any person who chooses

---

convenable de le paver avec des carreaux de poterie bien unis: ensuite on attache à l'entour de ces quatre soliveaux de la toile, qu'on étend le plus fort qu'il est possible, avec de petits cloux de doux pouces de distance l'un de l'autre, en observant de bien boucher toutes les fentes de tout côté; cela fait, on colle des feuilles de papier fort, dessus toute la toile, de même que sur les jointures du plancher, et à l'entour des bordures d'en bas; afin que la fumée ne sorte point par aucun endroit, attendu que c'est de la fumée que se fait le noir.

" Ce *sac-à-noir* étant ainsi accommodé, on prend un pot de fer, à proportion de la grandeur du *sac*, de crainte d'y mettre le feu; lequel pot on remplit de poix-résine, à un bon pouce près; laquelle poix-résine on casse auparavant par morceaux de la grosseur d'un bon pouce environ.

" Ayant ainsi rempli ce pot de poix-résine on le pose au milieu du *sac-à-noir*, et on y met le feu avec du papier; et lorsque la poix-résine est bien allumée, on ferme la porte, laquelle doit être bien jointe, et crainte qu'il y passât de la fumée par les jointures, on doit avoir soin de les bien boucher, soit avec du papier, soit avec du linge.

" Quand cette poix-resine sera entièrement consommée, et que toute la fumée sera attachée au *sac-à-noir* (ce qu'on pourra connaître lorsque ledit *sac* sera entièrement froid) il faut frapper dessus le plancher du *sac* et tout à l'entour de la toile, afin de faire tomber tout le noir qui y est attaché.

" Lorsque tout le noir sera tombé sur le pavé, ce qui se fait en moins d'un demi-quart d'heure de temps, on peut ouvrir la porte, et ramasser ledit noir avec un petit balai pour le mettre dans quelque vaisseau; ensuite on remet de la poix-résine dans le pot, laquelle on fait brûler comme nous venons de dire.

" On peut cependant faire brûler de la poix-résine aussi long-temps que l'on veut, sans qu'il soit nécessaire de faire tomber le noir sur le pavé, à chaque fois que l'on voudra mettre de la nouvelle poix-résine dans le pot.

" On doit toujours avoir la précaution de couvrir le pot auparavant de battre le *sac*, pour empêcher que le noir ne tombe dedans.

" Quelquefois il arrive qu'en ramassant le noir du pavé avec le balai, il s'y rencontre de la poussière, graviers, ou quelqu'autre chose, contraire au dit noir; dans ce cas, il faudrait mettre ce noir dans un vaisseau où il y ait de l'eau; par ce moyen, toutes les ordures s'en iront au fond, et le noir restera dessus l'eau. Voilà de quelle manière on fait le noir de fumée, à l'usage de l'imprimerie.

" *Du mélange du Noir avec le Vernis pour faire l'Encre.*

" Pour faire le mélange du noir de fumée avec le vernis, il faut verser le vernis dans un petit vaisseau, dans lequel on met du noir de fumée; car tout

to try the working of it, as I am fully convinced that all inks containing so large a portion of prussian blue, however fine it may

---

autre noir ne vaut rien pour l'impression, et le plus léger est le meilleur ; plus on met de noir, plus l'encre est épaisse, c'est pourquoi il n'en faut mettre qu'autant qu'il est besoin : ensuite on broie le tout ensemble extrêmement fort, avec un bâton fait exprès, afin que le noir se mêle bien par-tout avec le vernis, jusqu'à ce qu'il soit réduit comme de la bouillie épaisse qu'on ôte du feu ; et toutes les fois qu'on voudra prendre de cette encre pour la mettre dessus l'encrier de la presse, on la doit encore bien broyer avant de s'en servir.

" On doit observer de bien nétoyer l'encrier avant de mettre son encre dessus, parce qu'il s'y amasse ordinairement une quantité d'ordures, comme du crin, de la laine, et autres semblables choses.

" Quand on veut faire son encre sur l'encrier de la presse à mesure qu'on en a besoin, on met ordinairement cinq onces de noir de fumée contre deux livres de vernis, poids de seize onces ; mais comme cela n'est pas toujours si précis, attendu qu'un noir se trouve quelquefois plus pesant que l'autre, ou que le vernis est plus ou moins épais ; ainsi pour une plus grande certitude, on doit avoir deux différentes mesures, l'une pour le vernis et l'autre pour le noir, lesquelles on gardera expressément lorsqu'on aura remarqué ce qui sera nécessaire pour la quantité de l'un et de l'autre, pour que l'encre soit toujours d'une même épaisseur et d'un noir égal.

" Ainsi, ayant mis sur son encrier la quantité de noir qu'il faudra pour le contenu de la mesure du vernis, on le doit broyer de la manière que nous venons de dire. C'est ainsi qu'on doit mêler le noir de fumée avec le vernis, pour avoir une encre toujours également noire.

" *De l'Encre Rouge.*

" Pour faire l'Encre rouge, on se sert du même vernis que pour la noire, excepté qu'il ne doit point être si fort, et au lieu de noir on y met du *cinabre*, autrement dit du *vermillon*, lequel doit être bien broyé au sec sur un marbre (cela s'entend lorsqu'il est en pierre) et que l'on broie ensuite sur un encrier pour cet usage, de la même manière qu'on fait pour le noir.

" On peut y ajouter un morceau de colle de poisson de la grosseur d'une noix, que l'on fait tremper l'espace de vingt-quatre heures dans un peu d'eau-de-vie et que l'on mêle bien avec ledit vernis et le rouge ; ce qui rend l'encre fort luisante.

" On doit aussi broyer cette encre tous les matins et les après-midi, de même qui si on commençait à la faire ; afin que le rouge et cette colle se mêlent bien avec le vernis.

" Il se fait ordinairement une croûte sur cette encre, quand on est quelque temps sans s'en servir ; pour empêcher cela, il faut mettre de l'eau dans l'encrier, et le pencher un peu ; afin que l'eau nage par dessus l'encre, et

be ground, will invariably work foul; nor do I think the capivi balsam a good varnish for lamp-black, as the least exposure to the air on the ink-block would cause it to become thicker and more glutinous, and, in a few hours, destroy altogether the freeness of working.

For Coloured Inks I feel no hesitation in recommending it, combined with about one-fourth by weight of soft soap, as it keeps the heavier-bodied colours much longer suspended, and does not so soon become hard when ground with prussian blue, or vermilion, which is always the case when the common printer's varnish is used.

Some few observations to the workmen, on the application of the ink, will close this part of the subject; and this I consider to be the more necessary, as there appears to be a total want of discrimination in the use of ink of different bodies, for in examining various printed works, of my own as well as other printers, I have generally found the colour has been kept up considerably higher than the quality of the ink admitted. This over-inking is the most common and serious defect of the pressman, and, consequently, I wish particularly to impress upon his mind the necessity of adhering strictly to the precise shade intended to be produced, as in all cases where there is a greater quantity laid on than the ink-maker intended, either the varnish or the black must predominate; the one running into the paper and changing its colour, and the other lying in too great a body on the surface, and setting off when bound.

In furtherance of these remarks, and for the more immediate guide of the pressman, I have added specimens of pages printed

---

qu'elle ne s'écoule point; laquelle eau on jette dehors, quand on veut se servir du rouge, et on broie l'encre à l'ordinaire · voilà la meillure méthode dont on puisse se servir pour faire l'encre rouge.

" Pour le noir à l'usage de la taille-douce, le plus pesant est le meilleur; c'est ce qui est contraire à celui dont on se sert pour l'imprimerie: voici la méthode de le faire.

" Il faut de la lie de vin, qui soit bien sèche, et la faire brûler au milieu du feu; et lorsque cela est réduit en charbon, on l'éteint dans l'eau, et on le broie de même que *le vermillon;* ensuite on le mêle avec le vernis pour faire son encre; en observant néanmoins que cette Encre doit être beacoup plus liquide que celle dont on se sert pour l'impression."—*Manuel de l'Imprimerie.* Paris, 1817, pp. 17—22.

with the different-priced inks generally in use, shewing the precise shade at which each quality will stand well, and produce the best possible effect. By examining carefully these specimens it will be perceived that every quality of ink is capable of producing good work when used in a proper manner, and with necessary care, the only difference being the strength of colour gained.

Every workman ought to be aware that the thin weak ink, at eighteen-pence per pound, is only intended to produce a very pale black, for quick working and setting; the two-shilling a shade deeper; the three-shilling, if good, is well calculated for the general purposes of book-printing, when there are no fine cuts introduced, and, with care, will even answer for those purposes: the six-shilling is suitable for all the uses of fine printing, and will produce, in its present improved state, as much effect as can be produced from the finer inks recently sold at nine and twelve shillings per pound. The colour of the work can be increased only by the quality of the ink; the better the quality of the ink the more time it will take the pressman to work it, and the better may be the paper; it is impossible to work fine ink upon bad paper, and no employer can expect his work to look a fine and rich colour, if either the printer or stationer be straightened in the price of their respective commodities.

The requisites of being very stiff without strong adhesion; of keeping always soft and mellow, but drying quickly and without loss of colour as soon as it is on the paper; of adhering strongly to the paper, but not to the type; are qualities much to be desired, but difficult to be attained, even by those who have been long practised in the art of ink-making; nor indeed, do I know of any maker who has wholly succeeded in obtaining them. That of drying quickly without being made too glutinous for working freely, would, indeed, appear to be an advantage utterly unattainable, as what induces the drying quality has hitherto been found to prevent, in equal ratio, the freedom of working, and tending, also, to deteriorate the colour. I have not hitherto found any means of approaching this object, but by keeping strong inks in tin cans, in a warm room for a considerable time, twelve months at least, which I then find become much mellowed, and to work soft and well.

Many efforts have been made to conquer these difficulties;

many printers have thought themselves possessed of this *aurum potabile:* many have been the trials made by printers of newly-set-up ink-makers, with a view, from their pretensions, of obtaining this object alone; but I have found that instead of general improvement, if this object was in any degree attained, the other qualities seemed to retrograde in proportion. I have, however, some hopes that it is, at last, in a great measure effected; some experiments made by the firm to which I have before alluded (p. 721*), seem to have brought the article nearest the desired degree of perfection; and, if experience should prove this to be the case, there is not, in my opinion, any thing further to be wished for in the art of ink-making.

As I have said before, Mr. Colvil succeeded to the connexion, and retains the premises, of Mr. Blackwell.

Mr. Vaughan Griffiths is also an ink-maker of long standing and some eminence in the metropolis.

Mr. Foster, so often mentioned as the inventor of the composition balls, is also now in this line.

And in the Appendix I will continue the enumeration.

* Messrs. Thos. Martin and Co. of Birmingham, whose London agent is Mr. T. Bishop, 10, Fisher-street, Red Lion square.

THE OVERSEER, &c.

CHAPTER IX.

Of the Overseer of a Printing Office—His Duties—Rules for the good Government of the Office.

IT would be perfectly in the power of any master to conduct and read for business to the extent of four or five presses without the aid of an Overseer, if he were not subject to repeated interruptions by attending to the out-door department; but the nature of the printing business is such as to render it indispensably necessary that some person, in a superior capacity, should be *always* on the spot; a person, therefore, is generally employed as Superintendent or Overseer, from whom the journeymen receive their instructions, and to whom they pay respect and deference. Compositors and pressmen are at all times dependent on each other; they, therefore, demand the constant attention of some one in authority, in order that nothing may occur to cause a stoppage or standing-still to either party, and I shall proceed to offer a few hints, and to lay down some rules for the conduct of a person filling the respectable and important situation of an Overseer.

He should be the first and last in his attendance to business; viz. the first in the office in the morning, to see that the journeymen (if any on established wages), warehousemen, apprentices, and errand boys, are at business at the regular time; and the last in the office in the evening, to despatch proofs, messages, &c. by the errand boys, and to lock and secure the doors, closets, fires, and lights.

His attention to these points is of great importance, and cannot, in a well-regulated house of much business, be dispensed with; it must be the province of some one, and to whom can it so properly belong as to the next in rank to the master, who professes, and

whose duty it will be, to regulate and keep in order the different persons employed in his concern?

After the office has been swept, and he has seen the scattered type selected from the dust, and placed at the end of each frame to which it belongs, he should see that each compositor immediately distributes it in the proper cases. He should go regularly through the composing-room, and again cast his eye about every frame, in order to discover if any pie be left on it, or on the bulk attached to it. If he discover any, even a single letter, he should desire the compositor to distribute it. His uniform attention to this particular is of great importance; for it will be the means of keeping useful and necessary sorts in their proper places, which would be otherwise buried in a mass of pie, as well as give a neatness of appearance to the office, which is both pleasing and respectable.

The manager of a printing-office should be well acquainted with the exact state of every work in hand, and use the following, among other methods, to expedite and complete them. First, to keep a book (post quarto is a very convenient size) which may be called, The PROOF REGISTRY; a page, or two opposite pages, must be taken for each work, as put in hand; after the title of the work is written, columns should be ruled for the necessary heads; as, for example:

EVERY MAN HIS OWN WAG:

1824. *Proofs to Author—Mr. Raventop, New York: per two-penny post.*

Sig.	Proof Out.	Returned.	Revise Out.	Returned.	To Press.	Remarks.
B	Oct. 6	Oct. 7	Oct. 9	Oct. 10	Oct. 12	Out of Copy
C	— 9	— 10	— 12	— 13	— 14	Oct. 16.
D						
E						Copy received
F						Oct. 22.

This book will be of as great importance in a printing-office as a log-book on board a man-of-war. By it, the Overseer will be at all times enabled to state to the master or employer the exact progress of every work in hand; it will enable him to foresee the necessary provision of work for the presses, and ordering the paper out for wetting. It may be the means of exonerating him

and his employer from many a load of blame for imputed delay of the work, for an author will seldom allow that *he* detains the proofs, or furnishes a scanty supply of copy: if he keeps a proof a week, he will still expect a fresh proof every day; and if he does not see in proof the last line of copy which he has sent, he will wonder how the compositors can be "out of copy;" and when a fresh supply is delivered, with perhaps four or five long-detained proofs at the same time, he will complain to the bookseller that his work is stopped by the printer, if he should be a couple of days without *proofs* of progress: now this book will be at once a ready answer; booksellers know the necessary routine to be observed, and though it is sometimes hard to convince them that the printer is blameless, yet dates speak facts that no man can get over.

In watching the progress of the work among the journeymen, he will have frequent occasion—To take care that in companionships no man shall be permitted to retain too large a taking of copy, which will keep the other companions composing at random longer than they ought to be, and also block up and engage a larger quantity of letter than would be necessary if regularity were observed in this respect, as well as retard the imposition of the sheet, and in all probability keep both pressmen and compositors standing still—To order the imposition of a sheet the moment it is composed and made up, if there be room on the imposing stone for that purpose and furniture disengaged—When the sheet is imposed, to be equally expeditious in getting it pulled and read.—After it is read, the compositor should, without delay (if no obstacle occurs) correct it; and when corrected, it should be immediately pulled and given to the reader, either to be sent to the author, if required, or to be read for press, which, when done, the same expedition should be used in getting it finally corrected for press.

By following these methods closely, he will be enabled to keep compositors and pressmen regularly employed; and, if he have to do with steady men, will establish and preserve his master's character for despatch and punctuality.

An Overseer should possess a perfect knowledge of every branch of his profession. It sometimes happens that the absence of the reader may lay him under the necessity of *reading for press;* he should, therefore, be well qualified for that task; those qualifications to which we invite his attention, are fully laid down in the

next chapter. He should also possess a firmness of character not easily intimidated, with urbanity of manners, which will assuredly gain him the esteem and respect of all about him.

Sorts not in common use, furniture, chases, leads, &c. should be under his care and lock, that they may be in readiness for delivery when wanted; and, in the meantime, be saved from plunder—*prevention is better than punishment*. A memorandum book, in which particular sorts are entered, would be found highly useful.

It should be the business of the Overseer to revise the proofs for press; in doing which he will be careful not only to ascertain whether all the corrections marked in the proof are made, but also to cast his eye carefully over the sides, head, and bottom of each page, as it frequently happens that the folios or catch-words drop out of the forme in lifting it off the imposing stone; also in leaded matter, letters at the beginning and end of lines frequently fall out of their proper place, and by their standing crooked, have a slovenly appearance. Before the revise is given to the compositor, the number of the press for which it is intended should be marked at the bottom of an even page. It should be an invariable rule with the Overseer to require a second revise, or fair sheet, before proceeding, in order to see if all the corrections have been made which were marked in the first; this is indispensably necessary, particularly with foul compositors, as no sort of dependance can be placed on them.

He should, where there is not a person engaged expressly for the purpose, go regularly round, about every quarter of an hour, to the different presses; and examine their work, point out defects, if any, and glance again over the heads, sides and bottoms of the pages, to see if any thing has been drawn out by the balls or rollers, which frequently occurs, from bad justification of the lines, and careless and improper locking-up of the forme: he should turn up the heap to see that both sides are kept of the same degree of colour; and that the set-off sheet is changed as often as may be necessary.

An active and conscientious Overseer will not be content with merely managing the concerns of the composing-room and press-room; he will also see that the business of the warehouse is attended to with regularity and accuracy; and that the warehouseman, errand boys, and apprentices do their duty.

It will be difficult for the Overseer, even with the strictest

attention on his own part to the foregoing advice, to preserve order and regularity without some fixed regulations, either generally understood, or particularly specified, and which it may be very well to have either written or printed, and hung up in a conspicuous part of the office. I submit the following, the major part of which have been adopted by various offices.

RULES AND REGULATIONS PROPER TO BE OBSERVED IN A PRINTING-OFFICE.

Compositors.

1. Compositors to receive their cases from the Overseer, or other person appointed by him, free from all pie, or other heterogeneous matter, with clean quadrat and space boxes to both roman and italic, which they are to return to him in the same clean state.

2. When a Compositor receives letter, furniture, &c. from the Overseer, he is to return what he does not use, in a satisfactory state.

3. Compositors to impose their matter when desired by the Employer or Overseer; and the same for proofs that are desired to be corrected; unless in either case it shall appear that all the stones are engaged.

4. When the Compositor imposes from a forme, he is directly to tie up the pages of loose matter.

5. Formes, immediately after they are imposed, to be carried to the proof-press; and the proofs, when pulled, to be given to the Reader, or carried into the reading-closet, with, if a first proof, the copy; and, if a second, the foul proof.

6. No Compositor shall leave a foul stone, either of letter, furniture, &c.

7. No Compositor to detain an imposing stone longer than the nature of the business may require.

8. When any cases are taken out of the racks, the Compositor is to return them into their proper place immediately after he has done with the same.

9. No cases to be placed over others, or under the frames.

10. Galleys with head-lines, or other useful materials, during the course of a piece of work, to be cleared at furthest the day after the work is all completely at press.

11. When a work is finishing, the Compositor, or Compositors concerned shall, as the formes are finally worked, clear them away, taking from them the head-lines, white-lines, and direction-lines, as also the leads and reglets, which, with the furniture of each sheet, the matter being properly tied up for papering, are to be given to the Overseer, or any person he may appoint.

12. Sweepings of frames to be cleared away before one o'clock every day. Matter broken by accident to be cleared away on the same day.

13. No Compositor to mix two separate founts, without an express order from the Overseer.

14. When a Compositor carries his forme down for press, he is not to put two formes together without a partition between them.

15. The saw, saw-block, bowl, sponge, letter-brush, sheers, bellows, &c. to be returned to their respective places as soon as done with.

16. No person to take a candlestick, bodkin, snuffers, composing-stick, &c. not his own, without permission of the owner.

17. No person to misplace cases in the rack, or take an upper without the lower case, or *vice versâ*.

18. Pie of any sort, on boards, windows, frames, &c. to be cleared after five minutes' notice.

19. No person to take sorts from the frames or cases of another without leave; nor to hoard useful sorts, not immediately wanting them.

20. No person (except the Master or Overseer) to call off the errand boy while he is sweeping his rooms.

21. No candle to be left by any one, except in charge of some proper person; and the boundaries of the office to be considered, in all cases, the open air.

22. Jobs to be cleared away immediately after notice having been given by the Overseer.

23. These regulations, in cases of extreme hurry of business, by leave from the Master or Overseer, may be suspended; but, when that has ceased, to be immediately resumed.

Pressmen.

1. All proofs to be pulled within five minutes after notice, by the Pressmen who are in proofs.

2. Immediately after pulling a proof, the Pressmen to rub over the formes and chases with a ley-brush, and place them against the Compositor's frame to whom they belong, where they are to leave the proof.

3. Not to work without a figure unless particularly ordered.

4. As soon as a forme is wrought off, the Pressman to carry it to the ley trough, and there completely rub it over with ley, rinse it with water, and then carry it to the wrought-off place, or to the end of the Compositor's frame it belongs to.

5. Not to leave the ley-jar uncovered.

As to enforcing such rules by fines, as recommended by Mr. Stower, in his Printer's Grammar, I very much disapprove of it. If the Master possesses a proper portion of the *suaviter in modo* blended with the *fortiter in re,* he will *command* the observance of such necessary regulations in his own house; and the odium of inflicting fines may be dispensed with. If he have not these qualities, the tribunal necessary to be erected in his office for the cognizance of delinquencies of this sort will be such a fertile source of destruction of time, creating of party, encouraging spite, and promoting chapelling and combination, that his office would be better if altogether without laws. The foregoing regulations are, therefore, retained without the penalties, since every one can add them at his pleasure. Pecuniary fines are not likely to bind those to the interest of an employer whom honour fails to influence: and, from my own practice, I feel authorized in recommending suitable firmness in the Master and his Overseers, as more likely to operate serviceably on the good sense of the men and boys, than any exactions can do. Journeymen are not likely to be so scarce as to make it necessary to keep those who will not conform to reasonable rules, framed for the good of all; and apprentices must obey them at the order of a Master, or abide by the consequences of the alternative.

THE READER, &c.

CHAPTER X.

Corrections of Proofs—Marks of Corrections—Correcting in Metal—
QUALIFICATIONS AND DUTIES OF A READER.

IT has ever been, and ever ought to be, the chief object of eminent printers to aim at accuracy; so that while they have especial care to render what issues from their press as free as possible from professional faults, they will be still more assiduous in avoiding literary errors. The office of Corrector should, therefore, be conferred on one who has not only a perfect judgment of his mother tongue, but who has some knowledge of such languages as are in frequent use, viz. the Latin, French, Italian, Hebrew, Greek, &c., and who possesses, moreover, a quick and discerning eye. These are the accomplishments by which a Corrector may raise his own and his employer's credit; for it ought to be a consideration with booksellers to give their works to be done by printers whom they know to be either able correctors themselves, or who employ persons properly qualified by liberal education and general knowledge. It is certainly the author's province to see that his book be correctly published, either by delivering his copy very accurately and fairly written, or by carefully perusing the proof sheets: but the advantage is great in having the aid of a well-qualified Corrector, who may detect the inaccuracies in thought or language of the author, and by judicious suggestions contribute to the perfection of his work.

If a printer be aware that the copy put into his hands is incorrectly written or badly digested, he should either refer it to the author for revisal, or, if the incorrectness be such as he may venture to rectify himself, it should be done before it is wanted by

the compositor, that he may not be hindered or prejudiced by alterations in the proof. In all cases where he perceives an unusual spelling or use of words; a changing and thrusting in of points, capitals, or any thing else that is ill-judged and has nothing but fancy to warrant it, it is requisite for him to divest a work of all such pedantries.

What is chiefly required of a Corrector, besides espying literal faults, is to spell and point according to the best authorities (though, after all, he will find himself continually called upon to vary his practice according to the opinion of the author, whose work is passing through his hands); and that the compositor may become acquainted with and accustomed to his mode, the best expedient will be, to draw out, by degrees, a catalogue of such peculiarities.

As it is necessary that Correctors should understand languages, so is it requisite that they should be acquainted with the nature of printing, else they will be apt to commit themselves by objections to things done *secundum artem*. It is for this reason that correctors in most printing-houses are chosen out of compositors that are thought capable of that office; and who know how not only to correct literal faults, but who can also discern the improprieties of workmanship, which cannot be expected from gentlemen who have no technical knowledge of printing.

The manner in which errors are noticed in a proof, is by a peculiar set of marks or signs; and in order to illustrate the instructions on this subject, an engraving is subjoined, in which each respective mark is exemplified.

A wrong letter in a word is noticed by drawing a short stroke through it, and making another short stroke in the margin, behind which the right letter is placed. (See plate, and mark 1.*) *A wrong word* is corrected by drawing a line across it, and making the right one in the margin, opposite the faulty line. (See mark 2).

Where a word or words have been left out, or are to be added to the line, a caret must be made in the place where they are intended to come in, and the word, or words written in the margin.

* It is to be noticed that these figures are not used to corrections, except occasionally, where, by being very numerous, a compositor might be led to mistake one for another; and these corresponding marks used in the lines are applied here only for the purpose of reference to the examples in the plate.

Where a space is wanting between two words or letters that are intended to be separated, a parallel line must be drawn where the separation ought to be, and the sign 4 placed opposite in the margin. Also, *Where words or letters should join,* but are separated, the mark 5 must be placed under the separation, and the junction of them signified by the same mark in the margin.

When letters or words are set double, or are required to be taken out, a line is drawn through the superfluous word or letter, and the mark 6 placed opposite in the margin.

A turned letter is noticed by making a dash under it, and the mark 7 in the margin. Marking turned letters tries a Corrector's knowledge of the true formation of them, without which it would be better to mark them in the same manner as they do wrong letters, unless they are very sure that they can distinguish b, d, n, o, p, q, s, u, x, z, when they are turned, from where the same letters stand with their nick the right way.

Where a space sticks up between two words, it is noticed by a *cross* in the margin. (See 8.)

Where two words are transposed, the word placed wrong should be encircled, and the mark 9 placed in the margin; but where several words require to be transposed, their right order is signified by a figure placed over each word, and the mark 9 in the margin.

Where a new paragraph is required, a line in the shape of a crotchet should be made, and the same mark 10 placed in the margin; also where a paragraph should not have been made, a line should be drawn from the broken-off matter to the next paragraph, and in the margin should be written, *No break.* (See 11.)

Where several lines or words are to be added, they should be written at the bottom of the page, making a line from the place where the insertion begins, down to those lines or words. (See 12.) But where so much is added as cannot be contained at the foot of the page, write in the margin, *Out, see copy.*

If letters or words are to be altered from one character to another, a parallel line or lines should be made underneath the word or letter, viz. for capitals, three lines; small capitals, two lines; and Italic, one line; and in the margin, opposite the line where the alteration occurs, should be written, *Caps. Small Caps.* or *Ital.* (See 13.)

Where words have been struck out that have afterwards been approved of, dots should be marked under such words, and in the margin should be written, *Stet.* (See 14.)

Where the punctuation requires to be altered, the semicolon, colon, and period, should be marked in the margin and encircled. (See 15.) 16 describes the manner in which the hyphen and ellipsis line are marked: and 17, also, the manner in which the apostrophe, inverted commas, the star, and other references, and superior letters, and figures are referred to.

Where letters or lines stand crooked, they are noticed by drawing lines before and after them. (See 18.)

When a letter of a different fount is improperly introduced, it is noticed by the mark, 19.

When corrected, according to these marks, the page will read thus:

"THE art of Printing is but three hundred and sixty-five years old; and it long remained an undetermined point between the city of Mentz in Germany, and the city of Haerlem in Holland, concerning the place where, and the person by whom, this divine art was first invented and practised; but, at this time, the majority of voices have determined the dispute in favour of Mentz: however, we shall give both their pleas.

"It is said to be first attempted at Mentz, between the years 1440 and 1450, by John Fust, or Faust, John Meydenbuch, and John Genesteisch, surnamed Guttemberg.

"It was a question long controverted by many learned antiquarians, whether Guttemberg or Faust was the inventor of that art, till happily the original instrument was found; whereby it appears, that the latter only connected the others with him for the sake of their purses, he not being able to proceed without, on account of the great expenses attending the cutting of the blocks of wood; which, after they were once printed from, became entirely useless for any other work. This *instrument,* which is dated Nov. 6, 1455, is decisive in favour of GUTTEMBERG; but the honor of single types, made of metal, is ascribed to Faust, wherein he received great assistance from his servant and son-in-law, Peter Schoeffer, who," &c.

Inaccuracy, in some cases, may be laid to the inattention and

An Exemplification of Typographical Marks.

"THE art of Printing is but three hundred and sixty five years old; ¢nd it long remained an undetermined point between the ~~town~~ of Mentz in Germany, and ^ City of Haerlem|in Holland, concerning the place where, and the per son by whom, this divine art was first invented and pr¢actised; but, ~~but~~, at this time, the majority of voices have determin ə d the dispute in favor of Mentz; however, I we shall give both their pleas.

"It is said to be first ^ at Mentz attempted between the years 1440 and 1450, by John Fust, or Faust, John Meydenbuch, and John Genesteisch, surnamed Guttemberg. [It was a long[2] controverted[3] question[1] by many learned antiquarians | whether Guttemberg or Faust was the inventor of that art, till happily the original instrument was found.

Whereby it appears, that ^ on account of the great expences attending the cutting of the blocks of wood; which, a¢ter they were once printed from, became ~~entirely~~ useless for any other work. This instrument which is dated Nov. 6, 1455 is decisive in favor of Guttemberg; but the honor of single types made of metal, is ascribed to Faust | wherein he received great assistance from his servant and son-in ^ law Peter $choeffer, who," &c.

[1] a/ [2] city / [4] # / [3] the [5] [6] 8 / / [6] 8 [7] 9 / [8] | [9] tr / [10] [/ [9] tr / , / [11] no break / ft / [14] stet / [13] Ital. / [13] S. Caps. / [13] Caps. / [15] ⊙ ⊙ ⊙ [16] # / H [17] (/ [19] w /

[12] *the latter only connected the others with him for the sake of their purses, he not being able to proceed without.*

carelessness of the printer; it must often unavoidably arise from the almost impossibility of having a thorough knowledge of every language, whether those generally in use, or those which are denominated dead languages; or from a want of knowledge of the arts and sciences, and other abstruse subjects, wherein technical phrases and terms of art often occur, which, unless very distinctly written, may be misunderstood by the most attentive and accurate corrector; and when it is considered that proof-sheets of various works, on as many different subjects, may pass through the hands of the Corrector, in his professional capacity, in one day, and an interval of several days before the succeeding sheet of the same subject may follow, it cannot be expected that any man's memory will be strong enough to connect the ideas of each author so as to afford much assistance if he is not clear and distinct: in fact, by remembering too much of one author, he might incapacitate himself for doing justice to another. I have long ventured an opinion that a Reader's chief business is *to forget;* and that the best rule to observe is, as soon as he takes up one proof, to have no thought of any thing that preceded it. Thus, in all cases, but particularly in those where the author has it not in his power to see the proof sheets, accuracy and distinctness of copy is peculiarly desirable.

If attention be paid in the copy to the right spelling of proper names of persons, places, technical terms, &c.—to marking the close of sentences by the period, so that the author's ideas may not be misunderstood, and, above all, to the hand-writing being clearly legible, much time and a very considerable expense will be saved, and the great object of accuracy better ensured.

Of making the Corrections in the Metal as designated by the Marks above described.

Correcting is the most disagreeable part of the Compositor's business, attended not only with loss of time, but with great fatigue; and from the pressure on the stomach by leaning over the stone, it is extremely prejudicial to health. This is only to be avoided by careful distribution, silence, and due attention

when at work. The noise and confusion which too often prevail in a printing-office, from light and frivolous conversation, not only retard business, but at the same time attract the attention of the Compositor from the subject he has in hand, and cause him to make mistakes which can only be rectified by loss of time, and fatigue at the imposing-stone. Some men, no doubt, are capable of supporting a conversation, and, at the same time, of composing correctly; but their noise confuses those who are unable to ensure their accuracy but by quietness and a close attention to their copy. The practice of talking while distributing, prevails too much; for although those who may be composing need not join in the conversation, yet they are disturbed and diverted by it from the business they have in hand. The press-room is always, if possible, separated from the composing-room, as the work of pressmen is less liable to detriment from talking.

The first proof contains, generally, only the errors of the compositor; but it is almost impossible to discover the whole of them in the first reading; he is therefore expected to correct all his blunders, whether in the first or second proof, without making a charge for it.

Immediately on receiving his proof, the Compositor should begin to correct the matter, as the delaying it may occasion him to stand still for want of a return of letter; or be the means of keeping a press idle.

When he has gathered as many corrections between the thumb and fore-finger of his left-hand as he can conveniently hold, and having an assortment of spaces on a piece of paper, or, what is more convenient, in a small square box with partitions in it, taking the bodkin in his right-hand, let him, instead of raising each letter he may have occasion to alter, place the point of the bodkin at one end of the line, and with the fore-finger of his left-hand against the other, raise the line, altogether, sufficiently high to afford him a clear view of the spacing: he may then change the faulty letter, and alter his spaces before he drops the line. By observing this method, he will not injure the type, which must be the case where the bodkin is forced either into their sides or heads; it likewise ensures a greater degree of regularity where there may be occasion to alter the spacing, and will not take up more time than the other method.

The most careful Compositor cannot at all times avoid leaving a word or words out, or composing the same word twice. When either of these happens, he should consider the best mode of rectifying the accident, whether by *driving out*, or by *getting in* above or below it. This ascertained, let the matter be taken into a galley, and overrun in the composing-stick; overrunning on the stone being an unsafe, unworkmanlike, and dilatory method, which destroys the justification, and renders the spacing uneven.

In correcting, care should be taken not to hair-space a line where it can possibly be prevented; and to avoid it, overrunning, either backward or forward, must be judiciously adopted. The Compositor should also, in overrunning the matter, use the division as little as possible; for although he may carefully follow the instructions laid down in this work on the subject of spacing and dividing, yet the effect of his attention will be completely destroyed, if not followed up at the stone.*

The proof having been properly read and corrected, is then to be sent to the author, or person authorized by him to superintend the progress of the work through the press; either of whom, if they understand the nature of printing, will not defer reading the sheet, but return it with as few alterations as possible, to be got ready for the press. But authors who give much consideration to these circumstances, are very rarely met with.

* *Vide*, also, p. 412 *et seq.*

QUALIFICATIONS AND DUTIES OF A READER FOR THE PRESS.

When it is considered how much the credit of our art, and the general purposes of literature depend on grammatical accuracy and typographical correctness, it will readily appear that a careful and steady *Reader* must be indispensable in every printing-office. We will therefore detail the qualifications requisite to form such a Corrector of the press, as can alone save the typographic art from degenerating into one of those ordinary occupations that require only the mechanical operation of the fingers; and then give a few general rules relative to the business of a Corrector of the press.

It is always desirable that a Reader should have been previously brought up to the business of a compositor. By his practical acquaintance with the mechanical departments of the business, he will be better able to detect those manifold errata, which, when suffered to pass, give an air of carelessness and inattention to our labours, that must always offend the just taste and professional discernment of all true lovers of correct and beautiful typography.

Some of the principal imperfections, which are most easily observed by the man of practical knowledge in the art of printing, are the following: viz. imperfect and wrong-founted letters; inverted letters, particularly the lower-case s s, the n u, and the u n; awkward and irregular spacing; uneven pages or columns; a false disposition of the reference marks; crookedness in words and lines; bad making-up of matter; erroneous indenting, &c. These minutiæ, which are rather imperfections of workmanship than literal errors, are apt to be overlooked and neglected by those readers who have no idea of the great liability there is, even with the most careful compositor, to fall into them—nay, the almost absolute impossibility of wholly avoiding them.

Although, on these accounts, it is certainly desirable that every Reader should have been himself a compositor, we do not mean to infer, that even the imperfections we have just enumerated may not be observed by a Reader who never was practically acquainted with the mechanical part of our business. Long and frequent habits of reading proof-sheets for the press, a quick eye, and a steady mind, will certainly enable any one, even though not

a compositor, to detect those lesser deviations from correctness, which the inexperienced and the careless are apt to overlook. But while these habits are acquiring, without which no person can be safely trusted to read a sheet for press, the labours of the printer are liable to go forth into the world in a manner that will reflect dishonour on the employed, and give offence to the employer. This observation will apply even to those Readers who have previously been compositors. No proof-sheet, therefore, ought to be put to press, until it has been carefully read and revised by an *experienced* Reader.

But even habit itself is not sufficient to form a competent Reader, unless he possess those literary qualifications which are obviously necessary in an employment of this nature. No one ought to undertake the business of a Reader, until he has made himself complete master of, at least, his native language.

A Reader should be well versed in all the peculiarities of the English tongue—its idioms, its true genius, and singular adaptation to that variety of expression in which we embody our thoughts, and portray the human intellect. Instances will frequently occur, particularly in large printing-offices, where a knowledge, of this nature and extent, will be almost indispensable. Many, even of our first-rate authors, are too apt, in the warmth of discussion, the flights of speculation, and the laborious exercise of the thinking powers, to pass over, unobserved, those deviations from pure diction and strict grammatical accuracy, which they have imperceptibly acquired the habit of falling into, by their ordinary conversation with mankind. Now, although no Corrector of the press can strictly be required to do otherwise than to *follow his copy*, that is, faithfully to adhere to the original, with all its defects, yet every one must perceive, that it would often be performing a friendly, and perhaps a charitable service, to point out, in proper time, imperfections and mistakes which have escaped the observation of a quick or voluminous writer. This remark will, however, chiefly apply to inaccurate orthography, and glaring instances of erroneous syntax. With the spirit, the opinions, the whims of an author, no Corrector of the press has any right to interfere. In reprints of old and standard works, very little freedom of alteration ought to be granted to either Correctors or editors.

We shall conclude this part of our subject by remarking, that a Reader ought not to be of a captious or pedantic turn of mind: the one will render his situation and employment extremely unpleasant, and the other will tempt him to habits destructive of that consistency of character in his profession which he ought ever scrupulously to maintain. We are here alluding to a strict uniformity in the use of capitals, in orthography, and punctuation. Nothing, indeed, can be more provoking to an author, than to see, for instance, the words *honour, favour,* &c. spelt with the *u* in one page, and perhaps in the next modernized, and spelt without that vowel. This is a discrepance which Correctors of the press should always carefully avoid. The like observations will apply to the using of capitals to noun-substantives, &c. in one place, and the omission of them in another. Whatever may be the different opinions or practices of authors in these respects, the system of spelling, &c. must not be changed in the same work.

There is an opinion very common among printers, that no standard can be laid down with respect to punctuation. It is true, authors differ much in their modes of punctuation; but this arises not so much from a want of system, as from an adherence to the *close* or the *loose* styles of pointing; and yet it must be confessed that no two persons would be found to point a work exactly alike, or the same person to point the same work alike, at two distant periods. Some authors think it beneath their notice, relying on the skill and experience of the printer in this respect. This being the case, the punctuation is often left wholly to the Corrector; and what has been disregarded as a matter of little consequence by the author, becomes an important part of the Corrector's business. Let him discharge this duty with all possible uniformity and care.

Having said thus much concerning the qualifications of a Reader, we proceed to point out the proper application of those attainments, and to show the process which every proof-sheet ought to go through before it is in a state of correctness proper to go to press.

While the pressman is engaged in pulling a proof, the compositors on the work ought to be collecting and arranging the copy, that both may be put into the hands of the Reader for the purpose of clearing it from the most glaring literals, always having the copy lying upon his desk or table, ready to cast his eye upon in case of

doubt or misunderstanding. This process, which is a kind of slight comparison of the copy and the proof, having been carefully and deliberately gone through, if the proof be not exceedingly foul indeed (in which case it is best to have it corrected before he proceeds any further), the Reader should then call his reading-boy, to read the copy aloud to him. This assistant should be able to read with ease and distinctness any copy put into his hands; and he should be instructed not to read too fast, but to pay as much attention to what he is engaged in, as if he were reading for his own amusement or instruction. The eye of the Reader should not follow, but rather go before the voice of his reading-boy; for by a habit of this nature a Reader will, as it were, anticipate every single word in his copy; and whenever any word or sentence happen to have been omitted in the proof, his attention will the more sensibly be arrested by it, when he hears it pronounced by his reading-boy. Great care, however, ought to be paid, lest the eye of the Reader should go too far before the words of his reading-boy. For as he will be apt to be attending to the meaning of his author, he will read words in the proof which actually do not appear there, and the very accuracy of the reading-boy will but tend to confirm him in the mistake.

After having read through the proof with the reading-boy, he should examine the signatures, catch-words, head-lines, titles and folios of every page, and mark with accuracy the *prima*, or first words of the ensuing sheet. In marking the prima, care ought always to be taken, that not only the incipient word of the next sheet be marked, but also the number of the volume or part (when a work consists of more volumes or parts than one), and the succeeding signature and folio; as, for instance, thus; [carelessness, 3 F, 745. When all or any of these are neglected, if the compositor happen not to have set beyond the current sheet, which sometimes happens, or if he have not made up the first page of the next sheet, very serious errors are likely to occur.

The proof having been thus compared and read, it will, of course, be immediately forwarded to the compositor, to be corrected in the metal; when this is done, a *revise* should be immediately pulled, which, together with the first proof, should be returned into the hands of the Reader, whose next business is to collate the corrected sheet with the one he had before read, to see that all

the errata are properly corrected. We believe it is the practice of some Readers not to revise their proofs, but immediately to proceed to read them a third time, for press. This is a dangerous mode of procedure, and ought *never* to be adopted. It is no small matter to clear a proof-sheet of all its imperfections: an error, once found, is therefore of too great importance to be passed unobserved; but this every Reader is liable to, unless he revise every page of his proof with the utmost care and attention: for few foul compositors are able, in the ordinary course of their labour, to correct every error marked in the first proof. In revising a proof-sheet, particular care must be taken, that none of the fresh errors escape which compositors often make in the course of correcting the original ones. To avoid this, the Reader ought not only to pay attention to the particular word which has been corrected, but always to read over, with care, the whole of the line in which that word is to be found. This is particularly necessary in cases where it has been requisite for the compositor to alter irregular or slovenly spacing; for in raising the line in the metal for that purpose, there is very great danger of some word or letter falling out, or some space being put into a wrong place.

In offices where more Readers than one are employed, it is always advisable that a proof-sheet should be read over by at least two of the Readers. The eye, in going over the same track, is liable to be led into the same mistake or oversight. The interest excited by the first or second reading having abated, a degree of listlessness, also, will steal upon the mind, extremely detrimental to correctness in the proof.

In all cases where the first proof has been found to be very foul, it is necessary to read the whole sheet a second time by copy. It is almost morally impossible that a foul proof should be cleared of all its errors, or that every omitted word should be noticed in the first reading. And when also it is considered that, in cases of *outs* or *doubles*, a compositor is as liable to make errors in the insertion of the one, and improper connexion in the removal of the other, as he was in the original composition and making-up of the sheet, the propriety of reading foul proofs a second time by copy will be obvious to every one.

When a proof-sheet has undergone the regular process we have here laid down, the next thing is, to forward it, along with the

copy, to the author or editor of the work, or to such other literary person as the publisher has appointed for that purpose. But, in order to prevent disputes in case of delay, no proof should be sent to an author or editor without first writing on it the date of the month on which it was forwarded to him. A memorandum should also be made of the date of its return.

It ought always to be remembered, that the part of the copy which contains the connecting matter of the ensuing sheet, must either be retained, or carefully transcribed, or read off, a proof of that matter having been pulled for the purpose.

It may not be improper, in this place, just to take notice of the great danger to the correctness of a work which arises from the practice, too common with some authors, of keeping their proof-sheets too long in their hands, before they are returned to the printer. As the pages in the metal get dry, the adhesion of the types to each other is weakened, and the swell or extension of the quoins and furniture, which the moisture had occasioned, is removed; so that there is great danger of letters falling out, when a forme is long kept from the press. Nor is the danger which is hereby occasioned to correctness the only inconvenience: the impatience of authors to see their works in a fit state for publication is almost proverbial. The pleasure arising from beholding, as it were, "the form and texture" of one's thoughts, is a sensation much easier felt than described. That authors, therefore, may partake of this pleasure in a speedy and regular succession, they should make a point of forwarding their proof-sheets to the printer with as little delay as possible, not only that they may the sooner be got ready for press, but that the work may proceed in a regular manner, without being interrupted by the forwarding of other works in lieu of that, the proof-sheets of which are detained beyond the proper time in the hands of the author.

Authors are very apt to make alterations, and to correct and amend the style or arguments of their works when they first see them in print. This is certainly the worst time for this labour, as it is necessarily attended with an expense which, in large works, will imperceptibly swell to a serious sum; when, however, this method of alteration is adopted by an author, the Reader must always be careful to read the whole sheet over once more with very great attention, before it is finally put to press.

A proof-sheet having duly undergone this routine of purgation, may be supposed as free from errata as the nature of the thing will admit, and the word "Press" may be written at the top of the first page of it. This is an important word to every Reader: if he have suffered his attention to be drawn aside from the nature of his proper business, and errors should be discovered when it is too late to have them corrected, this word "Press" is as the signature of the death warrant of his reputation; and if he is desirous of attaining excellence in his profession, will occasion an uneasiness of mind which will but ill qualify him for reading other proof-sheets with more care and correctness. A Reader, therefore, should be a man of one business—always upon the alert—all eye—all attention. Possessing a becoming reliance on his own powers, he should never be too confident of success. Imperfection clings to him on every side!—Errors and mistakes assail him from every quarter! His business is of a nature that may render him obnoxious to blame, but can hardly be said to bring him in any very large stock of praise. If errors escape him he is justly to be censured—for *perfection is his duty!* If his labours are wholly free from mistake—which is, alas! a very rare case—he has done no more than he ought, and consequently can merit only a comparative degree of commendation, in that he has had the good fortune to be more successful in his labours after perfection than some of his brethren in the same employment.

In some printing-offices, the business of revisal for the press devolves upon the overseer; on many accounts this is proper and convenient; but no Reader should suffer his proofs to go to press, where there have been any very material errata, without their receiving a last inspection by himself. If he is doubtful of himself and diffident of his own powers of attention, how much more ought he to be on his guard respecting the care and attention of others! He should make it a rule never to trust a compositor in any matter of the slightest importance—they are the most *erring* set of men in the universe; and the attention of the overseer is liable to be interrupted by such a variety of causes and immediate demands, that he cannot always bestow the time and labour that is necessary in the revising a forme for press. In this final operation on a proof-sheet, the eye must be cast along the sides and heads of the respective pages, lest any letter should happen

to have fallen out; any crookedness have been occasioned in the locking up of the forme; any battered letters have been inserted; or any *bite* from the frisket occasioned.

These are the qualifications of a Reader; this is the business of one employed as a Corrector of the press. It is an arduous employment—an employment of no small responsibility, and which ought never to be entrusted to the intemperate, the thoughtless, the illiterate, or the inexperienced.

[I cannot pass this opportunity of giving my unqualified approbation to the whole of this important Section, and have inserted it nearly as given in Stower. It was written by the Rev. Mr. Nightingale, author of "A Portraiture of Methodism," who at that time held the situation of Reader in a considerable Printing-office. The instructions given are enforced with such strong reasoning, that a master printer has only to model his readers upon such a plan, to ensure honour to his house from this *sine qua non* of good printing.]

THE ACCOUNT BOOKS.

CHAPTER XI.

On the Mode of keeping the Accounts of a Printing-Office—The Work-Books—Warehouse-Book—Master's Book.

THE Printing profession has such a variety of peculiarities in its progress as to render the regular method of book-keeping, as taught for commercial purposes in general, of very little avail: a technical mode of keeping an account of the expenses paid in wages to compositors and pressmen for each work; of the proportionate addition calculated on the composition for the reading (which has also to cover warehouse expenses); and then another addition to answer for profit, expenses of material, and loss, are the principles upon which a printer must set out in his accounts.

Some very precise forms for keeping the workmen's accounts were laid down by Stower, planned both for book-work and job-work; but applicable only to the concerns of a house of small business, where the having a column to be headed with the name of each man who might happen to have been on a work, in which the pages he charged in each sheet were to be posted, and a similar arrangement as to the pressmen, would be practicable with small inconvenience and little loss of time.

An experience of more than thirty years in this department, which I have always reserved to myself, has convinced me that it is practicable to lay down a system by which the accounts of the largest offices may be kept so clear and concise, that, by opening only one book, the incidents necessary to be noted of any work, however large, may be seen at one glance, and its progress, to a single page, be ascertained every Saturday night. I do not think it at all material to know what pages in a sheet have been charged by compositors A, B, or C; or what formes by pressmen D or

E; the whole that is necessary is a registry of the pages and formes that have been paid for, so that no loss by overcharges shall be suffered.

After this general description I shall take up the matter more in detail, and minutely describe the books necessary according to my method.

First, the Work-books for the compositors and pressmen: in these they respectively enter their weekly bills, or charges, as briefly as possible, signed by their names; for instance:

A Compositor's Bill.

Annual Register, Vol. 53, Z 4, ²A 6, ²B 12
Correcting Do. X, 4 hours . . . . . .
Catalogue, B. C. and J. 8 p. Brevier . . .
Do. - - - 8 Nonpareil . . .
Do. Re-making-up, 8 hours . . . .
Share of General Bill (A) . . . . . .
Ormskirk Inclosure Bill, share of . . . .
Job—Patent Pencils, 8vo page . . . .

J. B——

A Pressman's.

1000 Ann. Register, U 1*, X 2* . . . .
5000 Catalogue, 1 forme . . . . . .
150 Bill, Ormskirk, A 2, F 2, I 1 . . .
2000 Job, Pencils . . . . . .
2000 Typographia, ²G 1, ²H 2 . . . . .

B—— and C——

Next—for the Warehouse. One book alone is necessary, as a rough day-book. The size I find most convenient is long foolscap, ruled faintly. Not the most trifling article should be *delivered* without a written order, if sent for, or signing a receipt if sent home, and then entering it in the day-book; this registers the *outgoings*. Equally necessary is it, that nothing should be *received* without invoice or bill of parcels, and entering in the book;

* *i. e.* Formes.

perhaps in some cases a slip written at the moment by the warehouseman may be substituted; this registers the *incomings*. These notes are then to be placed on a file. The entry in the book to be as short as possible; thus,

Monday, August 6, 1824.

From Messrs. Bleach and Cotton, 54 reams demy, on account of Messrs. Bind and Stitchall, for *(name of work)*

To Messrs. Longbill and Co. 104, Essay on Cash Payments.

— Mr. Square, 100 circulars.

From Messrs. Perfect and Co. 100 reams royal, on account of Messrs. Black and White.

Returned, Messrs. Gypsum and Retree, 2 reams demy left of Thoughts on Flax.

Every order for delivery, invoice for receipt, and other document to be carefully filed.

When any thing is sent home, the following form has been found most useful, the top part, as invoice, to be left; the bottom, as receipt, to be brought back.

182

M

Please to receive

N. B. The annexed RECEIPT to be returned (signed) by Bearer. } *from your h. s.*
T. C. Hansard.

§§§

book, if found to correspond, signify that all is so far right, by crossing both with red ink; and then, dividing the notes into classes of "Bought"—"Delivery"—"Sale"—place them on separate files so designated.

I come next to the book the most important of all, and which I call the "Work Journal." This is so arranged as to comprise in itself all the particulars I have already stated, and many more; and in more than one instance has superseded a whole set of books kept in, or for, the warehouse.

The plan of this book is given in miniature at the end of this article. Each opening, or two opposite pages, form but one table, and are paged but as one. It is ruled red, with faint horizontal lines, rather close; and the entry I have given as an example will show that I have; 1st, As a cross head, the name of the work; 2nd, The date when begun, and name of employer; 3rd, Every particular as to type, measure, casting up, notes, corrections, extras, &c. forming the expense of compositors' work; 4th, The same of number printed, and press-work charges; 5th, Paper-account; from whom received, quantity used for the work, and balance on hand, or returned; 6th, The delivery of the work; 7th, The calculations of the charges to the employer, showing the whole expense of the work, to the point of entering it, in one line, into the Ledger. An index completes the arrangement.

Observation. Under the third head (to revert to a former part of this chapter, as to the mode of entering the compositor's charges) it will be found amply sufficient to post the pages charged in each signature, as they follow in each man's bill in the work-book; a single glance of the eye will show if more than 8, 16, 24, &c. pages are charged in the signatures: if any over-charges are made, the compositors themselves will soon find out who is in fault; and if any doubt occurs, a reference to their work-book can easily be made to decide it. If a sheet has been over-wrote, and the pages afterwards deducted, place them on the left as in signature E. The same of the pressmen's charges; by a single oblique line against the signature for one forme, another crossing it at right angles for the other (as B, D, E); one mark, like a root √ (as C and F), if the whole sheet is charged at once, will, with the aid, if required, of the pressmen's book, keep

every account necessary for that department; cases may occur where the sheets, from particular circumstances, have to be charged in fractional parts, of which an instance is given in G.

The corrections can be entered against each sheet, as charged.

Pages charged at random, or where from circumstances they cannot be placed in the signatures to which they belong, are entered in a spare corner, and scratched off when placed and deducted.

A calculation of the price of any number of pages less than a sheet, entered just under the valuation per sheet, will afford much facility in checking the Compositors' book.

It would be folly to suppose my mode generally applicable to every peculiarity of business: it would be impossible to devise a plan that should be so; but I have seen some tolerably large concerns to which it is applied; and I have seen the books of others, totally inexplicable to any one but those who wrote them (and not very clear even to them), where it would have applied. Others may have superior methods adapted to their individual concerns; but I am venturing on the subject only with a view of information to those who may not have formed their own plans, and may think any information I can give worth attending to. I shall only add that, for Job work I have found the same columns equally applicable: for Parliamentary, or Bill work, a different appropriation of the columns may be necessary; but, in my judgment, I cannot conceive any possible cases in which I could not keep the accounts by the same form of entry.

Other accounts may be kept at the fancy or judgment of each individual. The weekly pay-list, where many are employed, may be formed into a book or sheet, of foolscap, to draw into each other: the private accounts, from a pocket-ledger to a regular cash-book, each one must keep according to circumstances; my business here is only with those necessary for the printing-office itself.

137 Hansard's Typographia. 137

1824.		£.	s.	d.
Jan. 8.	Small Pica, 8vo. . . . $23\frac{1}{2} \times 47 = 35{,}344$			
SELF, RIB, & Co.	MS. leaded @ $5\frac{3}{4} = 16s\ 9\frac{1}{4}d.$ . .		17	
	Notes		2	
	No. 1750 { 1000 5d. 6 8 / 750 $4\frac{1}{2}$ 4 6 / 11 2 } ℔ Sheet . .	0	19	0

	Corrections.	pp.	s.	d.
×B 2 6 8	0 1 6	1 ..	1	$2\frac{1}{4}$
√C 3 1 5 7	0 1 0	2 ..	2	$4\frac{1}{2}$
×D 8 4 4	0 2 6	3 ..	3	$6\frac{3}{4}$
2 ×E 9 7 2	0 0 6	4 ..	4	9
√F 3 7 6	0 1 6	5 ..	5	$11\frac{1}{4}$
500 3 8 / 1250. 7 6 G 8 1 7	0 1 0	6 ..	7	$1\frac{1}{2}$
H		7 ..	8	$3\frac{3}{4}$
I		8 ..	9	6
K		&c.		
L				
M				
N				
O				
P				
Q				
A				
16 Sheets.				

Random.
~~11~~. ~~8~~. ~~12~~. ~~9~~. 5.

Extra.
Brev. Table in
D . . 2 6
G . . 5 0
2 Doz. Rule.

Label.

1824.	Paper.		1824.	Delivery.		Calculations.			
Jan 24.	Bonsor . . .	8		Author . . .	1	Composing . .		19	0
Aug. 10.	. . . .	49	Nov. 4.	B. C. J. . .	2	Reading . . .		5	0
		57	5.	. . . .	104		1	4	0
						P. & L. . .		12	0
	16 Sheets 1750 $3\frac{1}{2}$ Rms.	56					1	16	0
Nov. 6.	Returned . .	1				Working $3\frac{1}{2}$ Rm. @ 7	1	1	0
		57				℔ Sheet . .	2	17	0
						16 Sheets . .	45	12	0
					1 760	Corrections . .	2	8	0
				and Waste.		Extra Tables .		15	0
						Rule cost . . .		11	0
						Label		10	6
							49	16	6
						To Ledger fol. 13			

WAREHOUSE DEPARTMENT.

CHAPTER XII.

Of the Warehouse—Duties of the Warehouse-man—Giving out Paper, Hanging up, Taking down, Laying down a Gathering, Gathering, Collating, Folding, Pressing, Making up Waste, Booking.

The Business of a Warehouse-man.

THE warehouse department of a printer is a highly important part of his concern; the management of which involves his own credit, and materially affects the interest of his employers: it is therefore indispensably necessary to appoint a man for the management of it, who has been regularly brought up to the business; on whom the utmost reliance may be placed for sobriety and honesty, and who can be taught to feel and act upon the principle of making his master's, and his master's employers interest, the object of his constant solicitude. Those who have not such qualifications will be continually liable, through ignorance and carelessness, to fall into many serious mistakes; such as mixing papers belonging to different works, and thereby destroying the uniformity of them; giving or setting out the paper incorrectly, which must afterwards be made good by reprinting those sheets which are found to be deficient, or the sheet wanting is left out of a book here and there, and in this imperfect state the work is delivered to the bookseller, who, perhaps, if a large number has been printed of a slow-selling book, will be several years before he discovers the deficiency, and must make the demand of having his books perfected, after so long a time, under very awkward circumstances. These and many other reasons show the impropriety of employing persons in the warehouse not acquainted with its business. I must, however, observe, that the master or overseer should fre-

quently look to the concerns of the warehouse, and see that the people employed there forward the different works with expedition, neatness, and accuracy.

Having made these observations, I shall now proceed to speak of the different stages of this department, and begin by supposing the warehouse to be quite clear, business coming in, and the warehouse-man just entering upon his office. He should first be provided with a book which is termed "The Warehouse-book." When the porter or carman brings paper from the stationer or bookseller, the warehouse-man will demand the bill of delivery, and see if it is right according to the invoice, before he signs the receipt, after which he will enter it immediately into the Warehouse-book.

In some houses it is thought necessary to keep a set of books in a warehouse: First, a Day-book, or Journal: secondly, an Employer's Paper-book, in which a place is allotted for every work, with a general index; and wherein the receipt, use, and balance of all papers are kept: thirdly, the Delivery-book; in this, also, a place is assigned for each work, with the number printed, and every delivery of the same, posted from the Day-book: fourthly, a book for the paper received and used on the master's private account: fifthly, Wetting-book: add to these, two or three others for particular accounts. I am, however, of opinion, that the fewer books left to the care of a warehouse-man the better, and have only one book in this department, as particularly described in the preceding chapter; which, with the assistance of the file, I find amply sufficient for posting every article to my own general book.

Having entered the receipt of the paper, the warehouse-man should then write on each bundle, with red chalk, the title of the book it is intended for, and remove it into a part of the warehouse most out of his way, or into a store-room kept for that purpose; observing to place it so as to take up as little room as possible.

Of giving or setting out Paper for the Press.

A BUNDLE of paper contains two reams—a ream of paper, *perfected*, consists of 516 sheets, or twenty-one quires and a half, twenty-four sheets to each quire. If not perfected, twenty quires

to the ream, of which the two outside quires are called *corded* or *cassé*, as they are generally rubbed by the cording of the ream. These quires are by the paper-maker made up of torn, wrinkled, stained, and damaged sheets; not that the whole quire always consists of such sheets, some good or passable being generally found in looking them over. But the general custom now is, for booksellers and authors to send in their paper *perfect*. When, however, it is sent in imperfect, it is the warehouse-man's business to lay by the two outside quires, to cull them when most convenient, and to add the quires to make the bundle perfect. What he afterwards selects as passable of the sheets in the outside quires, he must take care to dispose of so that they may neither be at the beginning nor end, but about the middle of the volume; or to have them used wholly for jobs or proof paper; for they are seldom so perfect as the inside quires.

It is the general custom to print of every work what is termed an *even* number, either 250, 500, 750, 1000, &c. These quantities are set out for the wetter in *tokens:* viz. for 250 (sheets) one token, containing 10 quires 18 sheets; for 500, two tokens, one 11 quires, and the other 10 quires and a half; for 750, three tokens, two of them 11 quires each, and the other 10 quires 6 sheets; and for 1000, four tokens, three of them 11 quires each, and the other 10 quires. If a work is printed in half-sheets, it, of course, requires only half the above quantities.

As it will sometimes happen that other numbers different from the above are printed, it may be necessary to give some hints to warehouse-men on this head. In giving out fractions of a ream of paper for short numbers, some loss will necessarily arise in the division of the overplus. The twenty-one quires and a half of twenty-four sheets each, making 516 sheets, is ample allowance, (if the paper has been honestly supplied) for the overplus books expected by the booksellers, and for waste, in numbers amounting to 500. But since the tympan-sheets and register-sheets are equally used for either small or large numbers, an overplus proportionate to the above will seldom be found sufficient for numbers under 500. Hence, when paper is given out for smaller fractional numbers, an additional allowance must be made; or it will be difficult to make up even the proper number; since, according to this rule, the proportion of the sixteen sheets overplus in a ream,

divided among ten sheets of 100 number each, would be only about three sheets; for 50 number, about a sheet and a half: whereas, in every case, one sheet for tympan, one or two for register, and as many more for incidents and accidents, would be absolutely necessary. Where strict attention is paid to the press-work, the men will be rather encouraged to throw out, and have paper to replace any they may discover in progress of work to be bad sheets, as soiled, torn, or spoiled in working; a work of even to the extent of 1000 number will seldom pass through an office, in which the exact proportion of the paper by reams will last out to the end of the reckoning. Indeed, so well are the most respectable booksellers convinced of the impolicy of being particular in this respect, that I have found them ever willing to grant any reasonable allowance. If they were not so, the consequences would be obvious upon reckoning the overplus books and waste. The printer, with regard to the paper account, as, indeed, in many other circumstances over which he has no control, is made the scape-goat of the sins of others. The paper is made up at the mill, passes through the hands of the stationer's men to be made *perfect*, and gets into the printer's warehouse-book upon an assumption, not bearing a doubt, that every ream contains 516 sheets! It is next to impossible for him to count the paper except by reams and quires; but instances frequently occur where an expert warehouseman, feeling out a very light quire, on counting it finds only eighteen or twenty sheets, and often an outside or cassé quire, which will be only nominally a quire; such instances are sufficient to clear a printer's conscience if, after due care has been taken, he cannot make up to the uttermost copy what he may wish and his employers may expect. Generally speaking, in numbers from 1000 to 2000, one over copy in each hundred is the least that should be made up—in larger numbers more, in proportion, may be expected.

It would be difficult to form any positive and invariable rule for the quantity to be given out for short numbers, as it must depend, in some degree, upon the quality of the paper. The more expensive papers, on which, generally, short numbers or fine copies are printed, must be given out more sparingly than common paper; and the tympan and register sheets be supplied by a more common sort, cut to the size of the finer.

For numbers up to 150, on ordinary paper, six sheets over will, generally speaking, be necessary. Thus, I should order for

25 number	1 quire	7 sheets
50	2	8
75	3	9
100	4	10
150	6	12
200	8	14
250	10	18

But if these fractions were added to even numbers, I should give out scarcely any overplus. Thus, a 250 has, in the share of the overplus of a perfect ream, by giving out 10 quires 18 sheets, got eight sheets over; therefore, for

275 I should only add	1 quire	2 sheets
300	2	3
400	4	6

and so on: the warehouse-man always bearing in mind to reckon for each 25, so many quires of 24 sheets, and the same number of sheets in the first instance, and then to add the necessary overplus.

In giving out paper for what are termed *jobs*, a little further observation will be necessary. It has been usual to give tables for this purpose, and the Printer's Grammar gave a very elaborate one, showing the quantity of paper to be given out for any job from 25 to 5000; and from two on a sheet to 128; but it was totally useless: it never could be acted upon: the calculation was made upon quires of 25 sheets, which never are found in a book or job office; so that if the directions of this table were followed in a case, for instance, where it gave the quantity as 11 quires, without attending to the above circumstance, the work would be found 11 sheets deficient.

The only way I have ever found practicable, has been, to try by division how many sheets are requisite for the purpose; for example, a job (label or any thing else) 750 number, 32 on a sheet,

```
32) 750 (23
    64
    ---
    110
     96
    ---
     14
```

will require 24 sheets, which will give an overplus of 18. If this is not thought sufficient, a remnant or sheet more must be given out, calculating that where a sheet has to be cut into many parts, some further allowance must be made for accidents.

The overplus sheets being partly allowed for tympan-sheets,

register-sheets, and other incidents; such as bad sheets, faults committed in beating, pulling, bad register, &c.; in any of these casualties the pressman doubles the sheet in the middle, and lays it across the heap as waste: for in case that sheet should run short of its proper number, the gatherer may chuse out the best of them to make good the deficiency. In setting out the paper, the warehouse-man lays each token with the folded side, or back part, one way, and the other token with the folded, or back side, the other way, that the wetter may distinguish the different tokens. When this is done, he writes a label, and puts it into the bundle, thus, *Guy's Spelling, Nov.* 7—or whatever may be the title of the book, that the pressman, when he takes up the heap, may not take the wrong one by mistake; and by this label, he can at all times ascertain how long the paper has been wet, and thereby know the state it is in for working.

Of hanging up Paper to dry.

When the paper is worked off, the warehouse-man takes the heap and carries it to the room where poles are fixed for the purpose of hanging the sheets upon to dry, and this most generally is the appropriation of every room in a printing-office that has sufficient height for the paper, when hanging on the poles, to be out of danger from the workmen's lights. He lays the heap down on a stool, or table, of a convenient height, then takes the handle of the peel in one hand, and lays the top part down upon the heap, so that the upper edge may reach near the middle of the sheet; and, with the other hand, he doubles over so much of the printed paper as he thinks sufficient to hang up at one lift; which should be about seventeen sheets, as near as he can guess; or, if he has pole-room to hang them on, twelve, and down to six, according as he can allow time for drying. Some warehouse-men, to forward their work, will hang up a quire or more at a lift, which, through its thickness, keeps wet a long while, where it bears heavy on the pole; besides it often draws out turpentine from the wood, which leaves a yellow stain upon the paper. But supposing the poles well-seasoned, and not likely to stain, still it is hazardous, and ought on no account to be allowed. Some kinds of paper is much more liable to mildew than others, and particularly that part which

rests on the pole, as it retains the water longer than the sides, which having the advantage of the air circulating between, get dry first.

Having thus doubled the first lift on the peel, he shifts the peel with his right hand, two or three inches towards the left, and then taking an equal quantity for another lift doubles that on the peel; and continues so doing till he has got as many lifts as the peel will carry; then he raises it, holding it aslant, that the shorter fold of the sheets may open from the peel, in order to convey them over the pole; and then drawing the peel from under, rests the lifts on the pole; and inserting one end of the peel so as to take all the lifts but one, he raises them so as to slide easily so far as to leave the next lift lapping about one inch over the first; proceeding in the same manner till he has disposed of all the lifts he carried up by that loading of the peel. He then, at his table, reloads, and proceeds as before. It will sometimes be necessary, where the end of a pole is exposed to any strong current of air, as a window, &c. to *lock* the last lift. This is done by folding a lift two or three times so as to concentrate its weight in a small compass, and hanging this over the last lift near the window it will generally prevent the air taking the sheets off the poles.

Of taking down the Sheets when dry.

When the sheets are sufficiently dry, the warehouse-man takes his peel and brush, and with the peel begins with the last lift hung up, on account of the wrapper being with that lift; and continues to proceed to the other, in the reverse order to that of hanging them up, successively taking them down and brushing them, till he has finished the whole; taking care that he lays the single signature of each lift one over the other; if this is not done, it will occasion considerable trouble to turn them when they are to be collated.

There is also another way of taking the sheets down from the poles, which is, by laying the flat side of the peel against the edge of that lift which hangs over the other books, and pushing the peel forward, forcing them to slide, one doubling over the other,

and so finishing the business with more expedition. But this method cannot be recommended, because the dust, which flies about while the sheets are hanging, must lodge on them, and by pushing them forward, is rubbed in, instead of being brushed off.

Of putting by the Sheets, or Signatures, when taken down.

When the heaps are taken down, the warehouse-man removes them to the warehouse, knocks them up, and puts them by in that part of the room where they will be most out of his way, till he has a sufficient number of signatures to form a gathering. But two or three sheets of each signature should be put by, in case the author, bookseller, or master, should want a copy of the work, or a specimen of as many sheets as are finished, before they are gathered. If this has not been done, and clean sheets should be wanted, he would then be obliged to lift every signature to get a sheet out of each, which will occasion a great loss of time, this may easily be prevented by reserving a few sheets as they are worked off.

Either the bookseller or author should be supplied, from time to time, with one copy of each sheet when printed, if from manuscript, in order to secure a copy from which to reprint in case of the calamity of fire. When he lays down the gathering, if such sheets have not been wanted, they are easily returned to their respective signatures.

Of laying down a Gathering.

To lay down a gathering, is to place the several heaps, with their signatures following each other, upon benches or forms of a proper height, beginning with the first signature of the body of the work, and laying it upwards, which is sometimes marked A, but in general B, placing it on the left end of the gathering-board with the length of the sheet before him, and the single signature (A or B) next him. He then follows with C, D, &c. laying them close to each other in the same position as the first, till he has

laid down a sufficient number of sheets, which is commonly from B to M, unless the volume consists only of fourteen or fifteen sheets; in that case he may as well lay down the whole at once, rather than make two gatherings of them; he will then save himself the trouble of booking them: but where a volume runs through two or three alphabets, several gatherings must be made. In such cases, eleven or twelve sheets in a gathering is quite enough. The title, with signatures a, b, c, cancels, &c. if any, should be left till the last, and placed at the end of the gathering, so that, when folded, they may be found withinside.

Should the impression of each signature be so large as to cause the heaps, when laid down, to be too high for the boys, he must lay the gathering by bundles. Where pamphlets and small books are done, containing three or four sheets, they should be laid down three or four times, to the full length of the gathering-board.

Of Gathering.

This is the proper work of the warehouse boys, all working together: the art required in gathering chiefly consists in not taking up more than one sheet at a time, and following each other in rapid succession. They begin at the left-hand of the row; laying the left arm across the first heap, taking a sharp-pointed bodkin or needle in the right-hand, and with the sharp end of it, just touching the right-hand corner of the sheet, and raising the hand, lift up that corner, which is immediately received in the left, and is conveyed to the next heap, being particularly careful to place it even over the other, that there may not be much trouble in the process which is to follow; taking the second in the like manner as the first, and going to a third, fourth, &c. to the end; and then proceeding to *knock the gathering up;* viz. to make the sheets lie exactly even over each other; which is done in the following manner: a table being provided for this purpose, or one end of the gathering-board left clear, on which is placed a wrapper, they take the ends of the sheets between the thumb and fingers of each hand, and grasping them loosely, hold them upright,

with the long side or edge on the surface of the table, then lifting them up about four inches high, they let them drop quickly through their hands, and catch them up again several times until they are quite even; for by these repeated jerks, those sheets which were above the rest are driven downwards, and those that were lower, upwards, and forcing the hands forward at the time of their falling causes them to be even at the sides; when they become exactly even, they lay them on a wrapper, and proceed gathering on as before, knocking them up, and placing them on the heap just gathered, with the single signature of each gathering lying successively one upon the other, still going on in the same manner, till they are piled to a convenient height. The pile is then covered with a wrapper, to keep the dust from soiling the top sheet, and thus accumulating, pile after pile, till the whole is finished. But, while gathering, attention must be paid in looking over the sheets, lest any should be torn, dirty, &c. and if any are found of that description they must be doubled up and put at the bottom of the heap they belong to.

The most general, and perhaps the most expeditious mode, is to use neither bodkin nor needle, but damp the end of the thumb with the tip of the tongue, and by this means lift up the sheets; but great care must be taken that the fingers are perfectly clean, or a number of sheets will be spoiled.

When the gatherers have worked till one of the sheets is deficient (for it would be an extraordinary circumstance for them to be just equal), they double up the odd sheets upon one another, cover them up with wrappers, and then put them by till collated.

Of collating Books.

The warehouse-man takes some of the books which have been gathered, and puts them on a table or gathering-board, with the single signature before him, at his right-hand, and his left-arm across the heap; he then, with a sharp-pointed bodkin or needle, lightly pricks up the corner of the first sheet of the single signature, viz. A, or B, and with the thumb of his left-hand catches it up, and nimbly shifts it between the two fore-fingers of the same

hand, that he may be ready with his thumb to do the same to a second, &c. for if he does not thus secure the sheets between his fingers, on receiving the next, the latter sheet would immediately fall back, and obstruct his view of the following signature. The collator cannot be too attentive in observing whether the gathering be true; that is, free from having two sheets of one signature; sheets turned the wrong way, or left out in the gathering, &c. and if he finds a sheet wanting or damaged, he may supply the defect from the heaps on the gathering-board, as it is the best and the most expeditious mode for the warehouse-man to go on with the collating at the same time the gathering boys are proceeding with the gathering. If duplicates have been gathered, he draws the overplus sheets from the rest, and lays them aside till he has collated the pile, after which he distributes them to their respective signatures.

Having collated a gathering, he lays it on his left, with a wrapper underneath, to keep the board from soiling the sheet; he then collates another, and puts that on the one just laid down, not even, but rather across it, that when he begins to fold, he may with ease distinguish each division, proceeding in the same manner till he has thoroughly examined the pile. Others again do not lay the gatherings down separately; but, when one is done, put the collated corner from them, and draw the next near them, and so proceed, moving each gathering backwards and forwards as they collate them; and when they have got a sufficient handful, turn them over, and keep going on as before, till the pile is finished. This way, if properly attended to, is the best, as it expedites the work, and answers the same end.

Of Folding.

Having collated the heap, or pile of gathered books, he proceeds to folding, which is performed in the following manner. The gatherings being on one side of him, he takes down one of the books from the rest, knocks it up on the board or table, and then keeps the single signature of the first sheet with its face downwards to the table, so that when he doubles it up, the last

sheet will be folded inwards, and the first outwards. The manner of knocking the book up having been already described, a repetition of it here is needless; so, supposing the sheets exactly even one over the other, he lays the gathering flat on the table, and having hold of the ends, or sides, in his hands, doubles the right-hand hold over to the left; but before he relieves the end of the book from his right hand, he nimbly shifts it to his left, between the two fore-fingers of that hand, and then releases the other end from out of the right; by having it in that position, that is, with his fore-finger between the two folds, he can (though not doubled quite even) shift it which way he thinks proper, without discommoding any of the sheets.

It being now doubled up, and the edges placed exactly even over each other, he rubs the palm of his right-hand hard on the fold or back part of the book, that it may remain close together. When this is done, he lays it on the wrapper near him, and works on as before, observing to fold them as the work requires; viz. if twelves, in the long cross; and if folio, quarto, octavo, sixteens, eighteens, or twenty-fours, in the short cross.

Folding books is an important concern, and ought to be particularly attended to by the printer, because, if they are unevenly folded, the dust, by long standing, will work in, and soil those sheets that come out further than the rest, so that, when bound, they will have on the margin a border of dust, unless the binder cuts very deep, which must be allowed to deface the beauty of a volume. On the other hand, if the binder is nice in his work, and will not suffer a bad sheet to appear in it, he sends word that it is wanting, and it is very rarely that he sends back the damaged sheet, which impoverishes the waste, and is likewise an additional disgrace to the warehouseman for his negligence in not properly collating the books; and should it happen to be the sheet which is short in the gathering, a book must thereby be rendered imperfect, none of that signature being left to make good the deficiency. It is necessary here to observe, that though books seem apparently uneven, it is not always owing to the folder's negligence; therefore, before blame can properly be attached to him, the books should be examined; because, though the quality of the paper has been attended to by the purchaser, yet perhaps nicety respecting the size may not have been so much regarded by him, so that

some of the sheets in a volume, or gathering, are frequently found to differ half an inch in size, particularly since the introduction of machine-made papers.

In some paper the sheets run equal enough as to size, but are not square; and if, in such cases, folios, quartos, octavos, or sixteens were to be folded with the two bottom corners even together, they would be extremely uneven; therefore the best that can be done, when it so happens that the sheets run in this unsquare manner, is to knock them up well, and fold them so that they may at least be brought even at the middle of their outer margins; then the outer margin of each side will share the defect alike.

When sheets are flimsy, which is sometimes the case, the more the folder knocks them up the worse they are, for the knocking them up only batters their edges, instead of bringing them even; therefore, before they are folded, the uneven sheets must be pulled even, and then gently knocked up.

Of counting out and pressing of Books.

Having folded a parcel, or the whole of the gathered books, the warehouse-man proceeds to count them out into proper quantities, according to the thickness of the gathering: if very thick, only five; if thin, ten, fifteen, twenty, or twenty-five, nay, sometimes fifty, according to their thickness, and observes to keep the same number in the count of each different gathering throughout the work. He then lays them flat on the table, and gives them a blow or two with the palm of his hand on the folded or back side, to make them lie close; after which he gently knocks them up even, and puts them in the standing press, if empty; if not, in a convenient place, on a wrapper, or waste sheet, till the press is disengaged, with the fold or back side of the first parcel one way, and the second quantity of books with the folded side or back the other way, continuing, in the same manner, to put them on one after the other, till the press will permit no more in height. He then proceeds to pile up, range by range, till full, observing that each range contains an equal quantity of books, and stands in a right parallel, so that when they are screwed

down they may all receive an equal pressure; the reason why he is particular in reversing the edges of each portion is, that if he did not, it would be impossible to pile them up straight with their backs to lie all one way: for, in printing, if the matter does not run close and even alike, but, on the contrary, some pages are loose and open, and others close, the open pages receiving a deeper impression than the close, make that part of the sheet swell, while the remaining ones lie closer; therefore, were a number of books to be piled, before pressing, with their backs one way, they would be raised up at one end, and consequently would soon slide down; which inconvenience is remedied by reversing them; for, turning the thick end on the thin, they are brought to lie level; besides which, their number then can the more readily be told.

The press being full, the warehouse-man takes the short pin belonging to it, and screws it down as low as he can, after which he takes a strong iron bar, about five or six feet in length, and with it works the screw of the press round with all his force as tight as he possibly can, then calling for the assistance of others in the warehouse, the pressure is finally completed, and the books remain in it from 12 to 24 hours. Where an hydraulic press is used, the screwing-down process is of course changed for the pumping. The pressure acquired is so great in these presses, that they may be charged and discharged three or four times in the day. He then takes them out of the press, and piles them up against the sides of the room, or in stalls, if the house is so fitted up, covering them neatly and closely with a wrapper under and over, so that the dust may not easily penetrate. A label is then attached to the pile, on which is expressed the title of the book, and how many the parcel contains. Should the impression be more than the press will admit of at once, it is filled up again in the like form as before, and so continued till the whole is completed.

If the impression is not very large, and will make only a few bundles, or is expected to remain some time under the charge of the warehouse-man, he ties them up into bundles, laying a wrapper under and over each, and having written the title and the number of books in the bundle on the upper wrapper, he puts them aside in the store room, or some convenient part of the warehouse, that he may have free access to deliver them out

according to order. As soon as the books are finished, he acquaints the author or bookseller that the whole of the impression is ready for delivery.

Of making up the Waste.

After the books have been collated and folded, and the duplicate sheets that were drawn out distributed, he takes the last signature first, and shaking the spoiled or doubled-up sheets out, if any, from between the others, he lays the overplus clean sheets flat on the table, with the single signature towards him, and opens the doubled or spoiled sheets, and places them on the former with the signature the same way. This done, he turns them over; knocks them even; folds them; and puts them near him, with the single signature upwards. He then takes the sheets that lie next to the signature he has just folded, and does the same to that, placing it on the other, and continuing till he has finished the whole; after which, he presses and ties them up together, and writes on the bundle the title of the book; also which sheet is deficient. They are then put in a proper place, whence they may be easily taken when wanted. But it must be observed, if there should be, amongst the sheets distributed, any of the signature that was short, he gathers again, till that, or some other sheet is deficient, collating and folding them, and putting them with the other books.

Of booking the different Gatherings.

When a volume runs through several alphabets, it must consequently make more than one gathering; therefore to put the different gatherings together in regular succession to make a complete volume, the warehouse-man takes as many counts of the first gathering as he can conveniently carry, and lays them on the place where they are intended to be booked. He then lays a wrapper on the gathering-board, and takes the first count of

reversed parcel, which he places on it, with the single signature upwards; a second quantity is then laid down in the same way, with their backs one on the other, and placed so that the end of one of the parcels may project outwards, while the end of the other is turned inwards: thus he continues piling them in this distinct manner, till he has got them sufficiently high. After this is done, the second gathering is placed by the side of the first, with their outer margin against the backs of that gathering, and piled up in the same manner, till it contains the same number of gatherings as the first parcel.

If a book makes more than two gatherings, they are laid down one after the other, as before observed. The utility of laying down each count, so that they may project a little over each other, will be readily perceived; for should he take two gatherings of one sort, or let one slip from his fingers unperceived (which is not improbable where there is a number of gatherings in a volume) on their being placed in this manner, he quickly discovers his error by their not running equal at the end of every count. If he does not lay them in this manner, a mistake of this sort will not be detected till he comes to the bottom of each gathering; and then to rectify the error will be attended with much trouble. When he has laid down some of each gathering, he proceeds to book them, which is done by taking one from each parcel, beginning with the first; he then knocks them even, and places them on a wrapper, reversing each book. They are afterwards tied up in bundles, or piled away in a convenient part of the warehouse, with a wrapper under and over, and a label in each pile. If some odd gatherings are left (which is highly probable), they are then added to the bundle of waste, and a memorandum made of it on the upper wrapper.

PRICES.

CHAPTER XIII.

Journeymen's Wages—Price-scale of 1785—*Subsequent Advances and Regulations—Charges to the Booksellers and Employers—Comparison of Expenses, Wages, Charges, and Profits—Warehouse—Cold-pressing with glazed Papers—The Hydraulic Press.*

IN the early stages of the printing business the mode of paying the workmen employed in it must have been similar to those of every other business or manufactory in its infancy; viz. on established daily wages. The idea of paying as for piece-work was not suggested for nearly two centuries after the discovery of the art.

It is now the general practice to pay the composition work by a calculation of the number of thousand letters which the compositor has to pick up: this is calculated by taking the width and length of the page in the letter m of the type in which it is set; assuming that the average width of each type is half an m (or an n) the measure (or width of the page) is doubled, and then multiplied by the ms in length:* this cannot always be calculated by

* As for example—[see p. 761] the page is 23 ms and an n wide, and 47 long 23½

multiplied by	2	
gives	47	ns wide
multiplied by	47	ms long
	329	
	188	
gives	2209	letters in a page
multiplied by	16	pages in a sheet
	13254	
	2209	
Total	35344	letters in a sheet, which (see Article 1),

of the scale, count as 35 thousands; and this, if manuscript leaded, is 5¾*d.* equal 16*s.* 9¼*d.*: this counts as 17*s.*

This may vary in price per thousand, and receive certain additions according to circumstances explained in the rules.

merely the number of lines appearing upon paper, because if space lines, or leads, are used, they form part of the measure of length; therefore, the ms are laid down the side of a page, and the length thus correctly ascertained.

The pressman's work is valued by the number of sheets which he prints, but calculated by two hundred and fifties, or half-reams.

These principles, regulated by various modifications and provisions, according to peculiar circumstances, fully explainedin the price-scales hereafter inserted, form the ground-work of all calculations of journeymen's wages and masters' charges, in the printing business.

Compositors' Prices.

Moxon, my oldest authority in printing, is silent upon the subject. As far back (previous to 1785) as I have been enabled to trace any fixed price, it appears that composition was paid in some degree according to the size of the type used; upon the very rational principle, that a compositor had much less interruption in the actual operation of composing, or picking up, his thousands, when working upon small type, than he would have when upon large, by the more frequent making-up, imposing, correcting, &c. &c. Thus, English type was at one period paid at four-pence, Long Primer three-pence half-penny, Brevier three-pence farthing. In Edinburgh, about fifty years ago, Brevier was two-pence half-penny, while English was four-pence per thousand.

The first regular trade scale was settled, after much labour and discussion, by a committee chosen from the body of masters, in November 1785. This scale has continued as the basis of all others to the present time. Previous to 1785 the price paid per thousand was generally, in town, four-pence. The composition scale was then formed upon an advance to 4½*d.* per thousand, being an addition of 2*s.* 6*d.* in the £. or 12½ per cent, and certain prices were given for other languages than English, for dictionaries, &c. &c. which had previously been at no settled ratio. In May 1793, it was agreed to include in the measurement of the page, the lines for heads and signatures. In December 1795, a regulation was

made relative to works in type larger than English. In November and December 1800, a considerable rise was granted, viz. of three-farthings in the thousand (making it 5¼) "in consideration of the extreme and increasing pressure of the times, the article of bread having risen to the unusual price of 1*s.* 7½*d.* the quartern loaf." In February 1805, a general adjustment of the scale took place, consisting of 27 articles or definitions, but this gave no advance on the general mode of casting up the work. In April 1810, a more important alteration took place in the scale, by admitting a distinction of leaded and solid work; this was further amended in 1816 by the regulations relative to reprints.

As this scale, thus amended and modified, is the established rule by which the work of compositors is now paid, it will be inserted, but I shall first endeavour to show, in a tabular form, the origin, progress, and proportions of the present prices.—[See opposite page.]

Trade Scale of Prices for Compositors and Pressmen.

SCALE OF PRICES FOR COMPOSITORS' WORK,

Agreed upon at a General Meeting of Master Printers, held at Stationers' Hall, April 16, 1810; *and altered as to* Reprints *in* 1816.

Art. 1. ALL Works in the English language, common matter, *with space lines*, including English and Brevier, to be cast up at 5¾*d.* per 1000; if in Minion 6*d.* per thousand; in Nonpareil 6¾*d.* *Without space lines*, including English and Brevier, 6*d.* per 1000; in Minion 6¼*d.*; in Nonpareil 7*d.*; in Pearl, *with or without space lines*, 8*d.*; Heads and Directions, or Signature lines, included. A thick space to be considered an [n] in the width, and an [n] to be reckoned an [m] in the length of the page: and where the number of letters amounts to 500—1000 to be charged; if under 500, not to be reckoned: and if the calculation at per 1000 shall not amount to an odd threepence, the odd pence to be suppressed in the price of the work; but where it amounts to or exceeds threepence, there shall be sixpence charged. [m] and [n] quadrats, or whatever is used at the beginning or end of the lines, to be reckoned as an [m] in the width.

2. Works printed in Great Primer to be cast up as English; and all works in larger type than Great Primer, as half English and half Great Primer.

3. All works in foreign languages, though common type, *with space lines*, including English and Brevier, to be cast up at 6¼*d.* per 1000; if in Minion 6¾*d.*; Nonpareil 7½*d.* *Without space lines*, including English and Brevier, 6½*d.*; Minion 7*d.*; Nonpareil 7¾*d.*; and Pearl, *with or without space lines*, 8¼*d.*

4. English Dictionaries of every size, *with space lines*, including English and Brevier, to be paid 6¼*d.*: *without space lines* 6½*d.* (In this article are not included Gazetteers, Geographical Dictionaries, Dictionaries of Arts and Sciences, and works of a similar description, except those attended with extra

Table to show the ADVANCE in the Price of Compositors' Labour, from 1785 *to the Regulation of* 1810.

	Price of Composition previous to 1785.	Advance of Nov. 20 1785.	Regulation of May 11, 1793.	Regulation of Dec. 18, 1795.	Advance of Nov. 29 and Dec. 24, 1800.	Regulation of Feb. 1805.	Advance of April 1810.	Total of Advances.	Reduction of Jan. 16, 1816 (on Reprints only.)
		Advance to	Gave the Heads and Directions.	Works in larger Type than English to be paid as English.	(Bread 1*s.* 7½*d.* Quartern Loaf—expected *halfpenny* on MS.) gave *three-farthings throughout* — viz. advanced from 4½*d.* to	The Scale of xxvii Articles formed.		per cent. 1785.. 12½ 1793.. 10 1800.. 16¼ 1810.. 12½	
Including English and Brevier	4*d.*	4½*d.*	- - -	- - -	5¼*d.*	5¼*d.*	5¾*d.* leaded 6*d.* solid	- - - - - - 51¼	5*d.* 5¼*d.*
Foreign	- - -	5*d.*	- - -	- - -	5¾*d.* Bourgeois or Brevier 6*d.*	5¾*d.* including Eng. Dictionaries.	6¼*d.* leaded 6¼*d.* solid	- - - - - -	5¼*d.* 5¾*d.*
Dictionaries in two Languages, or Foreign	- - -	5*d.*	- - -	- - -	5¼*d.* Duodecimo, or Eighteens, 6*d.*	6*d.*	6¼*d.* leaded 6¼*d.* solid	- - - - - -	5¾*d.* 6*d.*
		About 12½ per cent. 2*s.* 6*d.* in £.	About 10 per cent. 2*s.* in £.		About 16¼ per cent. 3*s.* 3*d.* in £.		About 2*s.* in £. & 3*s.* in £. Average 2*s.* 6*d.* in £. 12½ per cent.	12½ 10 16¼ 12½ — 51¼ per ct.	

trouble beyond usual descriptive matter.) Dictionaries of two or more languages, of every size, *with space lines*, including English and Brevier, to be paid 6½*d.*; *without space lines*, 6¾*d.*; if smaller type than Brevier, to take the proportionate advance specified in Article 1.

5. English Grammars, Spelling Books, and works of those descriptions, in Brevier or larger type, *with space lines*, to be paid 6*d.* per 1000; *without space lines* 6¼*d.*: if in two languages, or foreign language, *with space lines*, 6½*d.*; *without space lines*, 6¼*d.*

6. Small-sized Folios, Quartos, Octavos, and works done in Great Primer or larger type (English language), which do not come to seven shillings when cast up at the usual rate, to be paid as follows: English, and larger type, not less than 7*s.*; Pica 8*s.* 6*d.*; English 12mo. to be paid not less than 10*s.* 6*d.*; and Pica not less than 11*s.* 6*d.* per sheet.

7. Reviews, Magazines, and works of a similar description, consisting of various-sized letter, if cast up to the different bodies, to be paid 2*s.* 6*d.* per sheet extra.

8. Pamphlets of five sheets and under, and parts of works done in different houses, amounting to not more than five sheets, to be paid 1*s.* per sheet extra; but, as it frequently occurs that works exceeding a pamphlet are often nearly made up without a return of letter, all such works shall be considered as pamphlets, and paid for as such.

9. Works done in Sixteens, Eighteens, Twenty-fours, or Thirty-twos, on Small Pica and upwards, to be paid 1*s.* 6*d.* per sheet extra; if on Long Primer or smaller type, 1*s.* per sheet extra. Forty-eights to be paid 2*s.* per sheet extra, and Sixty-fours 2*s.* 6*d.* per sheet extra.

10. Works requiring an alteration or alterations of margin, to be paid, for each alteration, 1*s.* per sheet to the Pressmen if altered by them, and 6*d.* to the Compositor, as a compensation for making up the furniture; if altered by the Compositor, then he is to be paid 1*s.* for the alteration, and the Pressmen 6*d.* for the delay.—This article to be determined on solely at the option of the employer.

11. Bottom Notes consisting of twenty lines (or two notes, though not amounting to twenty lines), and not exceeding four pages in every ten sheets, in quarto or octavo:—one page (or two notes, though not amounting to one page), and not exceeding six pages, in twelves:—two pages (or two notes, though not amounting to two pages), and not exceeding eight, in Eighteens or above, to be paid 1*s.* per sheet; but under the above proportion no charge to be made. Bottom Notes, consisting of ten lines (or two notes, though not amounting to ten lines), in a pamphlet of five sheets or under, and not exceeding two pages, to be paid 1*s.* per sheet extra. Quotations, Mottos, Contents to Chapters, &c. in smaller type than the body, to be considered as Notes. [Where the notes shall be in Nonpareil or Pearl, in Twelves, the number of pages to be restricted to four; in Eighteens, to five pages.]—This article is intended only to fix what constitutes the charge of 1*s.* per sheet for Bottom Notes: all works requiring a higher charge than 1*s.* for Bottom Notes are to be paid for according to their value.

12. Side Notes to Folios and Quartos, not exceeding a broad quotation, if only chap. or date, and not exceeding three explanatory lines on an average in each page, to be paid 1*s.* per sheet: in Octavo, if only chap. or date, and not exceeding three explanatory lines on an average in each page, 1*s.* 6*d.* per sheet. Cut-in Notes, in smaller type than the body, to be paid for in a similar manner.—Side and Bottom Notes to many, particularly historical and law works, if attended with more than ordinary trouble, to be settled between the employer and journeyman.

13. Greek, Hebrew, Saxon, &c. or any of the dead characters, if one word and not exceeding three lines in any one sheet, to be paid for that sheet 1*s.* extra; all above to be paid according to their value.

14. Greek *with space lines*, and without accents, to be paid 8½*d.* per 1000;

if with separate accents, 10*d.*: *without space lines*, and without accents, 8¼*d.*; with accents, 10¼*d.*; the asper not to be considered an accent. [If Dictionary matter, to take one halfpenny advance.]

15. Hebrew, Arabic, Syriac, &c. to be paid double: Hebrew with points to be cast up as half body and half points doubled.

16. Music to be paid double the body of the sonnet type.

17. Index matter, though but one measure, to be paid 2*s.* per sheet extra.

18. Booksellers' Catalogues (in whatever language) to be cast up at 7*d.* per 1000, not including the numbering.

19. Night-work to commence and be paid for, from ten o'clock till twelve, 1*s.*; all after to be paid 3*d.* per hour extra till six.—Morning-work, commencing at four o'clock, to be paid 1*s.* extra.—Sunday-work, if not exceeding six hours, to be paid for 1*s.*; if for a longer time, 2*d.* an hour.

20. Jobs of one sheet or under (except Auctioneers' Catalogues and Particulars) to be cast up at 7*d.* per 1000; if done in smaller type than Brevier, to take the proportionate advance specified in Article 1.; if in foreign language, of one sheet or under (except Auctioneers' Catalogues), to be cast up at 8*d.* per 1000; if done in smaller type than Brevier, to take the proportionate advance specified in Article 1.

21. Where two pages only are imposed, either opposite to, or at the back of each other, they shall be paid for as two pages; but if with an indorse, or any other kind of matter constituting a third, then to be paid as a sheet, if in Folio; a half-sheet, if in Quarto, and so on.

22. Broadsides, such as Leases, Deeds, and Charter Parties, above the dimensions of Crown, whether table or common matter, to be paid the double of common matter; on Crown and under, to be paid one and one half common matter. The indorse to be paid one fourth of the inside page, as common matter.

23. All corrections to be paid 6*d.* per hour.

24. The Imprint to be considered as two lines in the square of the page.

25. Different volumes of the same work to be paid for distinctly, according to their value.

At a Meeting of MASTER PRINTERS *held January* 16, 1816, *for the purpose of taking into consideration the state of the Trade in general, in consequence of the alteration of the Times:*

It was the opinion of this Meeting, that it would be highly expedient that, after the 19th of February, the following modification of the Compositors' Scale of Prices of 1810, as far as regards Reprints, and of the Pressmen's Scale of Prices, as far as regards all Numbers exceeding the first 1000, should take place. In the Compositors' Scale, all Reprinted Works to be paid three farthings per 1000 less than the Scale of 1810. All Manuscript or Original Works shall continue to be paid for as at present. In the Pressmen's Scale, every Token above the first four Tokens to be paid one half-penny per hour less than the Scale of 1810.

At a Meeting of the Committee of MASTER PRINTERS *held March* 11, 1816,

It having been stated that doubts had arisen in the minds of several Masters as to what should be considered "Reprinted Works,"—Resolved, That they be informed that, under the above Resolutions, all "Reprinted Works" were meant to be comprehended, whether printed sheet for sheet or otherwise; it being understood, that, in cases where the copy is rendered peculiarly troublesome by intricate manuscript insertions, a reasonable allowance may be made for the same to the Compositor.

ABSTRACT OF THE SCALE.

	—		COMMON.	FOREIGN	DICTIONARIES. English.	DICTIONARIES. Two Languages or Foreign.	GRAMMARS, &c. English.	GRAMMARS, &c. Two Languages or Foreign.	GREEK. Without Accents.	GREEK. With Accents.
			d.	d.	d.	d.	d.	d.	d.	d.
MANUSCRIPT.—1810.	English to Brevier.	*leaded.*	5¾	6¼	6¼	6½	6	6¼	8½	10
		solid.	6	6½	6½	6¾	6¼	6½	8¾	10¼
	Minion	*leaded.*	6	6¾	6¾	7				
		solid.	6¼	7	7	7¼				
	Nonpareil	*leaded.*	6¾	7½	7½	7¾				
		solid.	7	7¾	7¾	8				
	Pearl	*leaded or solid.*	8	8¾	8¾	9				
REPRINT.—1816.	English to Brevier.	*leaded.*	5	5½	5½	5¾	5¼	5½	7¾	9½
		solid.	5¼	5¾	5¾	6	5½	5¾	8	9½
	Minion	*leaded.*	5¼	6	6	6¼				
		solid.	5½	6¼	6¼	6½				
	Nonpareil	*leaded.*	6	6¾	6¾	7				
		solid.	6¼	7	7	7¼				
	Pearl	*leaded or solid.*	7¼	8	8	8¼				

Notes constituting the charge of One Shilling per Sheet.—See Article. 11.

4to. and 8vo. 20 Lines or 2 Notes } in 10 Sheets.
12mo. . . . . 1 Page or 2 Notes }
18mo. or above 2 Pages or 2 Notes, in 10 Sheets.
Pamphlets. . . . 10 Lines or 2 Notes, in 5 Sheets.

Parliamentary work is paid upon a scale somewhat higher than the above upon account of the hurry and exertion required; and that is again divided into *Private Parliamentary Work* and *Public Parliamentary Work;* the former being at seven-pence per thousand, the latter at sixpence-halfpenny.

Cases in the Privy Council or House of Lords, &c. are paid more by custom than valuation; as

	£.	s.	d.
English per sheet	0	14	0
Pica	0	17	0
Small Pica . .	1	0	0

Side Notes are an addition of 5*s.* per sheet.

The regular width is 40 Pica ms: length in English, 68 lines: Pica 77: Small Pica 88: exclusive of heads and catch lines.

The number required for the Privy Council is from 80 to 100: for the Lords always 500.

The job-masters came to certain resolutions, as more specifically applicable to their peculiar line of business, but these rules have been very nearly embraced by the above scale, excepting the following definition "of jobs having two or three head-rules, and four columns, to be considered tabular; all above to be reckoned table work. The first to be paid one and one-half, the second double price."

The proposition for the classification of work in the compositors' scale, as relating to a distinction between manuscripts and reprints, was first brought forward in the trade meetings of 1810, by the writer of this chapter. He had long felt convinced that a graduated scale, to meet the various classes or qualities of work, and to equalize the rate of payment according to the various abilities of the workmen—to make a distinction between those works which might, from the ease of their execution, be given to apprentices and inexperienced hands, and those which, from their more difficult nature, would be allotted to the most expert and experienced—to keep that kind of work in the metropolis which, from its easy nature, could alone be sent away to distant country printing offices, that we might have something left for the employ of our young or aged, lame or indifferent hands—that, to effect all these purposes, a distinction ought to be made between *original, or manuscript works—print copy, but not exactly reprint works*—and *precise reprints, line for line and page for page.*

However, the committee, by a small majority, decided against him; and not thinking the question had been fairly met, he seceded from the trade-meetings altogether, and formed a scale of his own. The practice of six years showed so far the equity of the principle, that "the Committee," by the resolutions of 1816, adopted, but only in a partial degree, the principle for which he had contended, although the proposition made in a meeting, Dec. 24, 1810, to this effect, had been met by the following amendment:—"That the meeting are convinced that, to make any distinction between manuscript and reprint would be an unjustifiable departure from the established and long-approved principles by which works have been appreciated."

The two scales were thus brought so very near to each other, that, had as much been conceded in 1810, but little difference would have remained. Still some points, which by several of the best experienced masters of the trade who honoured me with their support, were acknowledged to be essential towards a more perfect distinction of works, remained undefined in one scale, but clearly pointed out in the other. The *general* distinction of *leaded* and *solid* by which the former, as low down as Nonpareil, is paid less for than *solid*, must evidently be erroneous where very thin leads are used, since those of eight down to fourteen to Pica can be no advantage to a compositor.

Previous to 1793, custom had made a most unreasonable demand upon a compositor's time by obliging him to set the headline, the white or leads after it, and the signature and direction line, for nothing: the request for abolishing this custom was perfectly reasonable, and, indeed, the readiness with which it was conceded by the masters, showed their sense of the hardship. No employers of a printer could argue against the propriety of paying for the full extent of the pages, as they appeared on the paper; but no such reasoning would apply to the paying for "m and n quadrats, or whatever is used at the beginning or end of lines." This is entirely a concern of the printing-office materials: there may or may not be leads to make the exact measure required; but this, since the charges are regulated by what is paid for the composition, ought not to affect the employer; it might be of serious consequence to a master printer in cases of estimating works conscientiously by what he paid his men, for supposing A to have no leads to make the required measure without using m quadrats, B to use n quadrats, and C to have leads the exact measure, a difference of two, three, or four shillings a sheet might appear in the prices, and it would be difficult to make any one understand the reason of the difference, since there is nothing which appears in print to authorize it. The scale below embraces all the first 5 articles, the 7th, 13th, 14th, 15th, 17th, 20th, 23rd of the scale above; adopting, in few lines, as minor regulations, articles 6, 8, 9, 10, 11, 12, 16,18, 19, 21, 22, 24, 25.

SCALE FOR COMPOSITORS' WORK.

T. C. HANSARD, April, 1816.

		Reprints. (a)	Print Copy. (b)	Manuscripts. (c)
English to Brevier, inclusive	Not leaded	5¼	5½ (d)	6
	Leaded (e)	5	5¼	5¾
Minion [*body half English*]....	Not leaded	5½	5¾	6¼
	Leaded.....	5¼	5½	6
Nonpareil [*half Pica*]	Not leaded	6¼	6½	7
	Leaded.....	6	6¼	6¾
Ruby [*half Small Pica*].....		7¼	7½	8
Pearl [*half Long Primer*].....		8	8¼	8¾
Diamond [*half Bourgeois*].....		9	9¼	9¾

Definitions.

(*a*) Line for Line, Page for Page.

(*b*) A Work having been printed before, but now either in another sized Type, Page, &c. or so corrected as to cause new making up throughout.

(*c*) Or Copy so various or corrected as to be equal to MSS. in trouble.

(*d*) Any doubt as to which Class a Work may belong, can be settled by taking the intermediate farthing.

(*e*) Leads not to be accounted of any advantage if less in thickness than six to Pica; but m or n quadrats, &c. used on account of the leads, not to be reckoned in casting up.

Additions to the above.

Foreign Language, add	*d.*½
English Spelling Books or Grammars, and Works of similar description, add	¼
Same in two or more Languages, or Foreign, add	½
Dictionaries, Indexes, or similar, add	½
Ditto, English with other Languages, or all Foreign, add	¾
Reviews, Magazines, and Works of a similar description, consisting of various sized letter, if cast up and paid to the different bodies, add	½
Jobs (except Auctioneers' Catalogues and Particulars) one Sheet, or under, add	1

Either with or without Leads.

Greek	add, *one half.*
If separate accents, (not considering the asper as an accent)	add, *three-fourths.*
Hebrew	*double.*
If with points, *half body and half points, and*	*double.*
Table-work	*double.*
Tabular	add, *one-half.*
Parliamentary and Government Offices Work	add, *one penny.*

Corrections to be paid at 5½*d.* per hour.

Every compositor should keep a private work-book, in which to enter an account of the number of pages he has composed, charged, &c. The first part should be precisely the original from which he copies his weekly bill into the general work-book, the usual form of which has been already given in page 757. At the latter end of the book he should draw out a table for each work he is upon with others, in order to prevent disputes concerning the pages written, or the imposing; the following form will be found useful:—

Title of the Work.							
Sig.	Set.	Wrote.	Imposed.	Sig.	Set.	Wrote.	Imposed.
B	6	8	1 forme.				
C	8	6	1 forme.				
D	14	12	1 forme.				

SCALE OF PRICES FOR PRESS-WORK,

Agreed upon at a General Meeting of Master Printers, held at Stationers' Hall, Feb. 8, 1810; *with the Alteration agreed on in* 1816, *and as specified in the Fourth Column annexed.*

	1810.			Modification of 1816.
	250	500 and 750	1,000	Every Token above the first Four.
	d.	d.	d.	d.
FOLIOS:—ON MEDIUM OR DEMY.				
Not exceeding 52 Pica Ems [in the width of the page] upon Small Pica and upwards	6	5½	5	4½
If on Long Primer, Bourgeois, or Brevier	7	6	5½	5
All above 52 Pica Ems, upon Small Pica and upwards	7	6	5½	5
If on Long Primer, Bourgeois, or Brevier	7	6½	6	5½
Long Primer and upwards, on Copy or Crown	6	5½	5	4½
QUARTOS:—ON MEDIUM OR DEMY.				
Not exceeding 40 Pica Ems, upon Long Primer and upwards	6	5½	5	4½
If on Bourgeois or Brevier	6	5½	5½	5
All above 40 Pica Ems, and not less than Long Primer	7	5½	5½	5
If on Bourgeois or Brevier	7	6	6	5½
Brevier and upwards, on Copy or Crown	6	5½	5	4½
OCTAVOS:—ON MEDIUM OR DEMY.				
Not exceeding 24 Pica Ems, upon Small Pica and upwards	6	5½	5	4½
If on Long Primer, Bourgeois, or Brevier	7	5½	5	4½
All above 24 Pica Ems, on Brevier or upwards	7	6	5½	5
If less than Brevier	8	6½	6	5½
Brevier and upwards, on Copy or Crown	6	5½	5	4½
TWELVES:—ON MEDIUM OR DEMY.				
Not exceeding 21 Pica Ems, upon Long Primer and upwards	7	5½	5	4½
If on Bourgeois or Brevier	7	6	5½	5
All above 21 Pica Ems, upon Long Primer and upwards	8	7	5½	5
If on Bourgeois or Brevier	8	7	6	5½
Long Primer, Bourgeois, or Brevier, on Copy or Crown	7	5½	5	4½
EIGHTEENS.				
If not less than Small Pica	7	5½	5	4½
If on Long Primer, Bourgeois, or Brevier	7	6	5½	5
If less than Brevier	8	7	6	5½
TWENTY-FOURS AND THIRTY-TWOS.				
If not less than Small Pica	7	6	5½	5
If on Long Primer, Bourgeois, or Brevier	8	7	6	5½
If less than Brevier	9	8	6½	6
POCKET BOOKS.				
OCTAVO.—Post or Crown, 21 Pica Ems wide, 35 long	7	6	5	4½
TWELVES. Pot, such as Lady's and Christian Lady's. Table Part, 6mo, 35 Pica Ems wide, 26 long	7	6	5	4½
TWELVES. Miscellany Part, 16 Pica Ems wide, 26 long	7	6	5	4½
TWELVES. Miscellany Copy, Christian Gentleman's, 26 wide, 35 long	7	6	5	4½
SCHOOL BOOKS.				
TWELVES.—Copy or Crown, not exceeding 17 Pica Ems wide, 31 long, nor less than Brevier	7	6	5	4½
OCTAVO.—Copy or Crown, not exceeding 21 Pica Ems wide, nor less than Long Primer	6	5½	4¾	4¼

N. B.—School Books on Copy or Crown are defined to be Palairet's French Grammar, Chambaud, Salisbury Spelling Book, Fox's Lessons, Ward's Latin Grammar, and all of a similar description.

ALMANACKS.

	d.
Royal Broadsides	7
Demy Ditto, Size Wing or Cambridge	5½
Goldsmith, Calendar Form	5½
Ditto, Prog.	5
Twelves Demy, 19 Ems wide, 34 long, Calendar	5½
Ditto, Prog.	5
Ditto, Crown, Size Rider	5
Octavo Foolscap, 20 Ems wide, 34 long, Cal. and Prog.	5

BILLS IN PARLIAMENT.

	d.
From N° 4 inclusive, to any N° under 100	4½
If 100, and under 200	5
If 200 or 250	5½
Above 250 and under 400	4½
If 400 or 500	5
If above 500 and under 700	4½
If 700 or 750	5
All above 750	4½

N. B.—Side Notes to be reckoned in the width; Bottom Notes not to be regarded. Works on Royal Paper to be paid one halfpenny per hour more than the above Prices.—Ditto on Foolscap or Pot, not less than 1,000 Number, and wrought at one pull, 4½*d.*—Ditto in Square Pages (like Entick's Dictionary) and Works for the Public Offices, to be advanced one halfpenny per hour on the Scale of 1800.—Fine Paper of the same Size, if included within the Token, not to be charged extra; but, if of a larger Size, then to be paid according to the Scale.

Three or more Proofs pulled at one time, to be charged 4*d.* per Forme; and, if made ready, to be charged as a Token.

Cards, large or small, to be paid 6½*d.* per 100.—Jobs without points to be paid 4½*d.* an hour.

Double Crown or Royal Broadsides, not exceeding 100 Number, to be paid 1*s.* 6*d.* if more than 100, to be paid 1*s.* per 100.—Demy Broadsides, not more than 100, to be paid 1*s.*; above 100, and not exceeding 500, to be paid 10*d.* per 100; if above 500, to be paid at the rate of 1*s.* 9*d.* per Token.—Broadsides requiring three pulls to be paid one-third more.—No Forme to be deemed a Broadside that comes in at one pull at the Common Press.

Night-work to commence and be paid for, from Ten o'clock till Twelve, 1*s.*; all after to be paid 3*d.* an hour extra till Six.—Morning work, commencing at Four o'clock, to be paid 1*s.* extra.—Sunday work, if not exceeding 6 hours, to be paid for 1*s.* if for a longer time 2*d.* an hour.

It is to be distinctly understood that no Advance shall take place on any Works but those which are paid by the Scale.

Pressmen's Wages.

THE Scale for regulating the price of press-work, appears to have undergone fewer variations than that for case-work, although from the change in the general nature of business, one certainly required at least as much alteration as the other. The proportion of what may be denominated heavy-work, or small type charged to the extent of paper, is now so much above that of light or easy work, that a considerable change might be made in the various definitions with equal justice to the journeyman, master, and employer; and some of the articles are so obviously inconsistent with any regard to fair proportion of charge, that any one would wonder that efforts ever made for the purpose of amendment in

this respect, could fail of meeting with success; for instance, look at the article

"*Octavos, on Medium or Demy.*

Not exceeding 24 Pica Ems, upon Small Pica and upwards	6*d.*	5½*d.*	5*d.* 4¼.
If on Long Primer, Bourgeois, or Brevier . . .	7*d.*	5½*d.*	5*d.* 4¼.

So that, excepting the number be 250 only, the price is just the same for two articles, admitting of a vast inequality; example, a sheet of Brevier is not allowed any more for, than a sheet of Pica or English of the same dimensions! The one may contain (Pica 21 × 43) 28,896 letters in a sheet, the other (Brevier 32½ × 67) 69,680.

As another instance, the article of "School Books, on Copy or Crown," as well as the explanatory note following, had become totally useless long previous to the last two amendments of the Scale, as almost all that class of work has been many years since converted to sizes of twelves, &c. for large paper.

The curious article of a Pot twelves, 35 Pica ms wide, seems to have been a favourite point with the Committee for showing the attachment of the trade to the old scales; for I have frequently pointed out this, along with other items equally incongruous, but have always been met by reasoning similar to that shown in page 785.

The correctness of the above observations obtains an ample sanction in the fact, that not one half of the work in the trade is paid for by these rules and regulations.

Some rational modification might, perhaps, be devised upon the following plan. I give it merely as a crude idea; but think the justice of the principle cannot be denied, that a forme of eight pages, of any given size, cannot be worth quite so much for making ready and working, as a forme of twelve pages same size, or, rather the latter must be worth more than the former:

PICA—and larger.

DEMY.	250	500 / 750	1,000	Above 1,000
	d.	*d.*	*d.*	*d.*
OCTAVO - - up to 18 ms	6	5	4½	4
Above 18 - - 21 -	6¼	5¼	4¾	4½
Above 21 - - 24 -	6½	5½	5	4½
Above 24	6¾	5¾	5¼	4¾
TWELVES - - up to 16 ms	6½	5½	5	4½
Above 16 - - 21 -	6¾	5¾	5¼	4¾
Above 21	7	6	5½	5
EIGHTEENS - up to 14 ms	7½	6½	6	5¼
Above 14	7¾	6¾	6¼	5½

ADDITIONS TO EACH.

	d.		*d.*
If ROYAL Paper	½	If Brevier	1½
If Small Pica type	¼	Minion	1¾
Long Primer	½	Nonpareil	2
Bourgeois	1	Pearl	3

It would be equally easy to lay down as a rule to guide all parties, that for the second superior class of ink say one fourth, one third, or one half more should be paid and charged; and for the third, or finest sort, one half, two-thirds, or double.

The whole of the complex scale, even if remaining at the present rate, might be comprised, for every useful purpose, in the following seven lines :—

Pages, not exceeding in width, if Folio, 52 Pica ms; Quarto, 40 ms; Octavo, 24 ms; Twelves, 21 ms.

Numbers	250	500 and 750	1,000	All above
Per Token	6*d.*	5½*d.*	5*d.*	4½*d.*

Exceeding the above widths . . . . . add ½*d.*
If Eighteens, Twenty-fours, or Thirty-twos . . . . add 1*d.*
If Royal Paper . . . . . add ½*d.*

OF THE CHARGE OF THE MASTER PRINTER TO HIS EMPLOYER.

THE foregoing statement of the wages paid by the master to the journeymen for their labour, naturally leads to the consideration of the mode usually adopted by the master of making his charge to the bookseller, author, or other employer, in order to

repay his outlay of materials, wages, and other expenses, and obtain a profit for his labour and capital employed. Although I may expect to be able to make myself understood, as far as regards any general rule, to the members of the profession, yet to effect this as any certain guide to others, even in the bulk of a whole volume, would totally fail of being effectual; since it is a rare occurrence for any two works to be of precisely the same value in wages. Mr. Stowers compiled, in 1813, "The Printer's Price Book," in which, with considerable labour and ingenuity, he has given 326 pages of various dimensions, type, pages, &c. &c. and 86 pages of tables of the prices per sheet. Yet I never found a single instance where some variation in width, length, proportion of various type, number, extras, or something or other varying in combination, did not take place to render an entirely new calculation necessary; and, I will venture to assert, that if any master printer in London was to look over his books, he would not find two works in fifty which were so exactly fellows, that they would, in every respect, be of the same expense to him, and, consequently, charge to his employer.

Hitherto, in all treatises on the practice of our Art, this subject seems to have been studiously avoided: in the education also of printers, and in the conducting the business, it has seemed a mystery into which no one was to be initiated till he actually became a master, and then he was to gain his information as well as he could when he had no one to instruct him. The consequences have been such as might have been easily foreseen. The young adventurer has launched into business for himself without any impression being made upon his mind of the vast expenses for outgoings in the concern; his ideas have been dazzled by the *great profit!* which he hears is charged upon the composition and press-work, but which (as will be shown presently) is but a small portion of the master's expenses; he judges that the way to establish a connexion at first setting out, before, perhaps, he has any family to provide for, is by being satisfied with less profit; he offers to work much under the price that the established masters have charged, obtains employ by low estimates, and soon finds himself possessed of less disposable income, than would be obtained by a respectable journeyman.

Now, I see no necessity for all this mystery; and I do hope,

that by plainly laying down what my experience has taught me to believe an equitable mode of charging, founded upon the usage of the respectable members of the trade, and giving also some reasons to substantiate it, to promote a certain degree of stability in those who have yet to begin life, and to convince such of our employers as may condescend to give these pages a consideration, that our profits are not such as will bear any diminution, if they wish ample justice to be done to their work, and that we should retain that rank in society which is the surest pledge for a regard to literary and moral character.

The mode of making the charge of Composition and Reading is, first having fixed, by the Scale and Rules hereinbefore given, the proper pay for the composition, to add one fourth of that charge for the reading, and then add to that total one half of its amount to cover the various expenses and yield a profit. The exception to this rule is when the smaller kind of type is used; the Type-founder's charge arising rapidly from four shillings per pound (the price of Brevier) to seven, eight, and fourteen (the prices of Nonpareil, Pearl, and Diamond), the printer increases his addition to the labour-price in nearly the same proportion, to meet the additional expenditure of materials.

The next article of a Compositor's charge is Corrections; which, as I have before observed [see p. 745] is the most onerous part of the business to both journeyman, master, and employer. The former, who are paid by the hour, about the same as for per thousand composing, find that it throws them out of the regular quick habit of composing, and deadens the nice sensibility of feel of the tips of the fingers, so essential to the Compositors' business—the master, from the delay it occasions in the process of a work, the destruction of his type and materials by the use of the bodkin, the proof-paper used, Reader's time occupied, and boys to carry proofs out, and fetch them back again. This work is always valued, and I think very inadequately, by doubling, without any charge for reading, the Compositor's charge, and therefore amounts to one shilling per hour, per man, for whatever time the proofs may take: extra for occasional table matter, small type more than may be paid for in the notes, peculiar characters, Greek, Hebrew, &c. is valued by the same rule.

In calculations of Table Work all the brass rule, actually cut

up for the work, is charged at prime cost, the cuttings and old brass going for the profit. So of any peculiar sorts cut or cast purposely for a work, if not likely to be again useful as the necessary stock of a printing-office: of course, in a second edition of the same work, this extra expense does not recur. Postage and coach charges are just re-charged what they cost.

Out of these charges, in addition to the actual cost of workmanship, is to be paid the great expense of fitting up a printing-office in the first instance: then the vast expense of type, with its certain and speedy deterioration till condemned to the metal-pot; then furniture, another perishable article; proof paper; fire and light; rent, taxes, and repairs; capital sunk, or paid for in the shape of interest, to give the accustomed trade-credit; all of which amount to so considerable a sum in the aggregate, that I very much doubt, were it possible to analyse the value of material employed and expenses attendant upon each individual work and job, whether any profit whatever, above common interest for the capital employed would accrue upon this branch of his business upon the great majority of works passing through the house of a London printer; but it has been handed down to us from ancient times as the established criterion of our charge for Case-work.

It may have been possible, in the early ages of typography, to have made a nearer approximation towards a fair quota of expense attendant upon each separate work; the type was of a fashion, and the metal of a quality, formed for much longer endurance than what we get in this age; the eye of the Bookseller and Reader were satisfied if they got a clear legible impression of good old English characters, and a fount of letter arrived to a fair old age before any objection was made to its use for repeated editions of the same work; till, in some old established printing offices, the type was of an age "time out of mind" of either master or man. I need not add, how different, in every respect, is the case now; few works are expected to be re-printed in the type which was employed on the previous edition, and a comparison of the prices of type for the same periods as has been given in the Table of comparative price of Compositor's wages, by which the master's price was equally regulated, will show that his recompence for that great outgoing of his concern, has by no means kept pace with his outlay, the former showing an advance

of about 50 per cent, the following very little short of 100 per cent :—

	Thus, from 1763 to 1792.			Same Founts in 1816—1822.		
	s.	*d.*		*s.*	*d.*	
Pica	1	0	per lb.	2	6	per lb.
Small Pica	1	2		2	8	
Long Primer	1	6		3	0	
Bourgeois	2	0		3	8	
Brevier	2	6		4	0	
	5·) 8	2		5·) 15	10	
Average	1	7½		3	2	

Thus, the amount of wages paid, forming the ground-work of the charges made, seems to be the fairest mode which can be adopted, because any advance in the former would proportionably elevate the latter; but if that was right in former days, to cover the expense of what may be called the raw material, it must be a much worse trade now, when the material has borne an advance of 100 per cent, and wages and charges only 50—add to which (and it is no slight consideration) that from the increased price of paper, the more expensive type of Long Primer, Bourgeois, and Brevier is called for in a three-fold proportion.

For press-work, a greater proportion is laid upon the sum paid to the workmen for expenses and profit, in order to compensate, not only for his wages, the expense of wear and tear of presses, parchments, blankets, oil, proof-paper, balls, rollers, and the endless variety of utensils called for in mechanical operations, but the INK also. This was formerly calculated by taking the exact sum paid for the working of the first 1,000 into the same calculation as the composition and reading, and then adding (as it was called) the thirds* upon the whole; about 1810, it was, from the vast increase of expenses, judged necessary to abandon this mode, and charge the whole impression as ream-work, by the scale following; viz.

* I have heard that some have agreed to revert to the old mode; but I am convinced, from the most minute calculation, by weighing the ink used for reams of various works, the value of the rental on the cost, with wear and repairs of the machine, the expenses of balls or rollers, oil, parchments, blankets, set-off paper, wetting and drying, warehouse-work, &c. &c. &c.; that adding "the thirds" to the first 1,000, does not pay expenses, much less yield profit to live by.

Pressman's Charge per Hour, or Token, or Half Ream perfect,		The Charge to Employer.
being 4½*d.*	or per Ream 3*s.* 0*d.*	is per Ream 7*s.* 0*d.*
5	3 4	8 0
5½	3 8	9 0
6	4 0	10 0
6½	4 4	11 0
7	4 8	12 0
7½	5 0	13 0
8	5 4	14 0
8½	5 8	15 0
9	6 0	16 0

Thus increasing the charge to the employer for every ½*d.* per token paid the journeymen, 1*s.* per ream; which, as the greater the wages paid, so much more, either in quantity or value, will be the ink used, the time of the press occupied, proof-paper destroyed, &c. appears as rational a mode as could be devised.

For works of a superb description, it is necessary to pay a vast increase upon the above scale; 1*s.*, 1*s.* 3*d.*, 1*s.* 6*d.* per token are frequently paid for working with the finest descriptions of ink, greatest care, interleaving every sheet with common paper, and other niceties; the finest works are done on establishment, per week, and limited to doing only so much per day; thus, those grand works of British typography, Bowyer's England, and Macklin's Bible were limited to about three tokens per day, and three or more hours were expended in making ready a single forme.

In this branch of his business, as well as the former, the master printer is paid much less, by comparison with former times, for his work in proportion to his increased expenses. Blackwell's ink, at the period before alluded to, was 1*s.* 3*d.* per lb., now we can use nothing for good book-work under 2*s.* 6*d.*

The best presses were made by Arding for eighteen or twenty pounds each, now we are thought unfit for good work with presses that cost less than from seventy to eighty guineas. Then pressmen could be trusted to do their work properly with only the general superintendence of the master or overseer; now we must keep a foreman at high wages to attend to the press-room only. Then we had long numbers and easy work to keep a press going for days together; now all our long numbers go to cormorant machines.

The following calculation of a printer's profits was given by an eminent printer to the Select Committee of the House of Commons on Printing and Stationary—*See* Report, 30th July, 1822—Appendix B.

"ESTIMATE PROFIT and Loss on Printing 500 Copies of an Octavo Volume.

Total charge for printing 500 copies of an Octavo Volume, consisting of 26 sheets (or 416 pages) at 39*s.* per sheet . .							£50	14	0
CALCULATE—Case-work	0	16	0	1	0	0			
Reading	0	4	0						
Add Profit and Loss . .				0	10	0			
							1	10	0
Press-work, 1 Ream							0	9	0
Per Sheet							£1	19	0
ANALYSIS—Paid Compositors . .	0	16	0	1	0	0			
Reading and Overseers .	0	4	0						
Add 50 per cent . .				0	10	0	to cover		

cost and wear and tear of TYPES, and other materials used for the work; rent, taxes, and other incidental expenses, interest and capital employed, and profit.

Charged for one ream Press-work, 9*s.*; viz.					
Paid 2 Pressmen, 4 hours each, at 5½*d.* .	0	3	8		
Warehouse-work*	0	0	11		
	0	4	7		
Add difference . . .	0	4	5	To cover cost of INK,	

wear and tear of presses, rent, taxes, &c. as above.

Charge for Profit and Loss :—At Case . . .				0	10	0
Press . . .				0	4	5
				0	14	5 per sheet,

which, on 26 sheets, amounts to £18 14 10. Of this sum not more than one third can be reckoned as actual profit, which is £6 5. on the 500 volumes (= 3*d.* each), and gives about 12 per cent on the total charge.

J. L. C."

* Taking-in and stowing the paper, wetting down the paper; hanging-up after printed off, for drying; taking-down, smoothing, and pressing; laying on the gathering-boards; gathering, collating, and putting into portions for delivery to the bookseller or binder, &c. L. H.

It was formerly understood, as a general principle, that Parliamentary Work was charged at a much higher rate for Profit and Expenses than bookseller's work, at least *double*, sometimes more; and with very great reason. No one can know, who has not been initiated into all the peculiarities attending parliamentary business, the great expenses incurred by the much larger stock of materials necessary for carrying it on, above the ordinary routine of book-work;* the hurry and expedition always required; the personal attendance of the principal; the incessant care upon his mind of satisfying the various official and subordinate hands through which his work must pass; the expenses of keeping workmen constantly upon the alert; great part of their time lost by waiting from the finishing of one job to the beginning of another; such business allowing of no stock work to which the men can resort; the ruin it inflicts upon private work, which cannot be kept as mere stop-gap for parliamentary work; the great attention and skill required to arrange the various kinds of manuscripts and table-work, previous to putting into the compositor's hands:—no one else can know the sacrifice which must be made of all the comforts and enjoyments of life of a Parliamentary Printer; and if no greater return for the immense stock of materials required, skill exerted, and attention necessary, can be obtained for that description of business, than for what is denominated Book-work, Parliamentary business should never have my labour while the printing of books, pamphlets, or newspapers could be procured to keep a moderate establishment in employ.

But so it is said to be now. The Evidence given in that Report states, that great reductions have been made in the rate of profit since 1810, and that the mode of charging is now precisely in the same ratio as that done for booksellers. Numerous calculations are given to expose the whole arcana of typographic charges by those who are (and some who fain would be) parliamentary printers.

* Instances are stated in the Report above referred to, of upwards of three hundred sheets being left standing and unworked, in one parliamentary office, at the end of a session. Also, of one Report which had 20,000 lbs. of type laid fast at one time; and a calculation of the total amount of type required in that office, appropriate to parliamentary works, to the enormous extent of two hundred and twenty-five thousand pounds weight!

The Journals, being done upon a different principle, are only paid to the men as booksellers' work.

There is one remaining branch of a printing establishment to mention, of considerable importance to the employer, and no trifling expense to the printer; namely, THE WAREHOUSE, but which, as no specific item is put down in estimating the charges, would have no further mention in this chapter, except for showing that its expenses are to be paid out of the reading charge, or ream-work profit. The only seeming exception to this is, where, in some extensive establishments, the printer *cold-presses* or *glaze-presses* such work as may be so ordered; but as this must occasion a fresh expense, and an addition of hands, it can be no absolute exception to the general rule.

Hot-pressing is usually executed by those who make it a profession for pressing cloths, as well as paper (with the exception of, I believe, one person who presses for printers and booksellers only). It is a process which costs some expense in the outfit, requiring very strong, powerful presses; glazed boards to be placed alternately with every sheet of the paper; furnace and oven to heat the iron plates, one of which is laid between each twenty or thirty sheets, till the press is full, and the whole is pressed down by a lever and windlass, or by Bramah's hydraulic machinery. This gives a smooth glossy face to the paper and print, but is far from beneficial to either; the paper will yield, by the heat of the plates, something of its white bleached colour, and turn brown or yellow; and the ink, unless of the finest quality, and well set by a length of time after printing, will run or spread on the surface of the paper, and very frequently, if the oil or varnish has not been well prepared, show a dark brown oily appearance, or shade, round the thick parts of the letter. It is, therefore, now the custom, to obviate such inconveniences, particularly since length of time is now neither the plan nor interest of printer or bookseller, to *cold-press* all fine work; that is, to effect the whole process by greater power, and the use of glazed boards only, abandoning the hot plates: consequently it is now more in the power of the printer's establishment to manage, than when the furnace, oven, and hot iron plates were necessary; for, by the addition of the glazed boards, to a powerful iron-screw standing press, and lengthened lever, or still greater power of an hydraulic press, he

may manage to make the process pass tolerably well without sending his work to the hot-pressers, who never take such care to keep work free from soil as a printer's establishment. The very circumstance of passing through more hands, with carriage to and fro, must make it more liable to these accidents; but, as hinted above, it is not done without expense; the glazed boards are costly, 37*s.* to 40*s.* per gross; the time of boy and man to superintend mounts high, and the only effectual means of executing it, by an hydraulic press of from £100 to £150* value, increases the outlay; but with such a press the process becomes effectual, simple, and easy; and three or four hours will be sufficient for the work to remain under such pressure.

The charge for hot-pressing is from 2*s.* 6*d.* to 3*s.* per ream, but the cold-pressing may be very fairly paid at 2*s.* per ream.

* An hydraulic press is valued by the calculation of the number of tons pressure for which it is constructed; thus, 60 tons, £60; 150 tons, £150. See more upon the hydraulic press in page 224.

OF THE ROLLER-PRESS, OR COPPER-PLATE PRINTING.

CHAPTER XIV.

On the Rolling Press, or Copper-plate Printing—Description of the Press—Mode of Inking and Pressure—Charcoal Vapour exchanged for Heat of Steam—Further exemplification of the difference of Type and Plate Impression.

ALTHOUGH the printing from engraved plates cannot, strictly speaking, claim to be treated of in a work professedly on typography, yet are the two species of printing so closely allied, that, in many respectable provincial offices they are carried on under the same roof; and consequently some mention of this branch of printing may be deemed necessary to render this work complete.

Copper-plate printing is done by a machine called the rolling-press, which may be considered as consisting of two parts; namely, the body and the carriage: analogous, in some respects, to the letter-press. The body consists of two cheeks of which the dimensions are not always the same; but, ordinarily, about four feet and a half high; a foot thick; and including a space of two and a half feet between them. These cheeks are fixed by tenons into wooden feet, which rest horizontally upon the floor, and to which they are made to stand perpendicular, being joined at the top by a cross-piece, or head. From the feet towards each end, rise also four other perpendicular pieces each about three feet high, which, with other horizontal pieces, form a frame-work both before and behind the cheeks, serving to sustain a smooth even plank about four feet and a half long, two feet and a half broad, and an inch and a half thick, upon which the engraven plate is to be placed for printing, and which may altogether be considered as the carriage of the press. Between the cheeks work two wooden cylinders or rollers, commonly of about six inches diameter, each of

which has its ends lessened to about two inches diameter, called trunnions, by which each is borne in two pieces of wood in form of half-moons, and lined with polished iron to facilitate the motion, and which are made to play in grooves formed lengthways in the cheeks. The space in the half-moons left vacant by the trunnion is filled with paper, pasteboard, &c. so that they may be raised and lowered at discretion, to leave the necessary space between them for the passage of the plank charged with the plate, paper, and blankets. Lastly, to one of the trunnions of the upper roller is fastened a cross, consisting of two levers or bars of wood traversing each other. The arms of this cross serve in lieu of the handle of the common press, by the aid of which the workman gives a motion to the upper roller, by which a motion being also communicated to the under one, the plank is forced backwards and forwards between them, with the plate and paper, and hence impressions are obtained.

The following is a brief description of the mode of printing from copper-plates. The workman takes a small quantity of the ink upon a rubber made of linen rags strongly bound about each other, and with this smears the whole face of the plate as it lies on a grate over a charcoal fire.* The plate being sufficiently

* This is a part of the process which renders the business extremely injurious to the health of the workmen, in consequence of the noxious vapour arising from the charcoal, as each man in the shop must work over a fire of this kind. To obviate this distressing evil, the application of steam for the purpose of heating plates has been successfully applied by Mr. Ramshaw, an eminent copper-plate printer of Fetter-lane. The Society for the Encouragement of Arts, in the session 1818, rewarded his invention by a gold medal, showing a laudable disposition to liberally confer their honours and rewards on such as should introduce means of preventing the worst of human calamities to a laborious mechanic—the loss of health. The following communication was received from him on the subject, and drawings of his invention are preserved in the Society's repository.

33, *Fetter Lane, Fleet Street, March* 10, 1818.

Sir;—I beg leave, through your hands, to present for the approbation of the Society of Arts, &c. a representation of my apparatus for an improved plan of copper-plate printing, by the use of steam in the place of charcoal fires, the effluvia of which are so injurious to the health of the workmen, and at the same time subject to many accidents by fire; as by the old process, each man works over a charcoal fire, without any chimney to carry off the vapour

inked, he first wipes it over with a foul rag to take off the extra colour; then with the palm of his left-hand, and then with that of his right, he continues to free the surface of the plate from all the unnecessary ink which it had received; and to forward this operation of wiping, he drys the inside of his hands from time to time by rubbing them on a lump of whitening. In wiping the plate perfectly clean, without taking too much ink out of the strokes cut by the graver, consists the practical proficiency of the workman in his art.

The plate, thus prepared, is next laid on the plank of the press, and upon it is placed the paper, well moistened after the manner described in the letter-press process, in order that it may the more freely receive the ink and impression. Two or three folds of

arising from the burning charcoal. Thirteen of those fires I formerly had in my work-shops, and one sea-coal fire or stove in my drying-room, fourteen fires in the whole: by my new process, the use of the thirteen charcoal fires is superseded. The apparatus consists of the fire-place; a small boiler, containing only thirty gallons of water, with two safety-valves; the pipes for conveying the steam to the plate boxes of cast-iron, thirteen in number, supplying the place of thirteen charcoal fires; they have a flat surface, 16 inches square, half an inch deep at the sides, running to three inches in the centre, thus leaving a fall for the water to run as the steam condenses; these boxes are particularly convenient for the workmen, as they turn out their work much cleaner than by the usual process, not having to attend to their charcoal fires. Another advantage is, that injury to the health of those employed is thus prevented, as every person must be convinced of the unhealthy state of rooms where charcoal is burning in open pots, without flues, from which both noxious fumes and particles of fine dust are continually escaping.

* * * * * * * *

Another use to which the stove is put, is that of throwing hot dry air into the drying-room, and extracting the damp air. The apparatus which performs this latter office, acts on the principle of the reversed syphon; having an open aperture in the side of the stove, which admits the external air into a cast-iron box, which surrounds the upper part of the fire: here the air being heated, passes into the drying-room through a tube. When cooled and saturated with moisture from the wet paper in the rack, it falls through the tube into the boxes which surround the lower part of the fire, and being thus again heated, rises up the tube into the drying-room

* * * * * * * *

I am, Sir,

A. Aikin, Esq. Yours, &c.

Secretary, &c. JAMES RAMSHAW.

flannel are then brought over the plate, and things thus disposed, the press is set in motion by pulling the arms of the cross, by which means the plank bearing the plate and paper is carried through between the rollers, which, pinching very forcibly and equally, press the moistened and yielding paper into the strokes of the engraving, whence it draws out a sufficient portion of the ink to display every line of the intended print.

This description will again explain, but in more technical detail, what has been so frequently mentioned in the foregoing parts of this work; namely, the essential difference between the processes of type and plate printing. In those former explanations of the distinction between the two arts, the peculiar principle which distinguished each was briefly pointed out; and from what is here said, it will be further apparent, that by the soft substance of the cloth or blankets the moistened paper is forced, by the pressure of the rollers, into the engraved lines of the plate, in which only the ink is deposited, and from which it is drawn out upon the surface of the paper; so that, what is called the impression, is, according to the strict fact, the very reverse of an impression in its technical sense: for the lines, and other parts of the engraving which form the picture or words, will appear *in relief* upon the paper, in proportion to the depth to which the engraving tool has gone into the copper; and the body of ink, adhering also to the paper upon the projecting parts of its surface, will make this fact perfectly perceptible both to the eye and touch, particularly in all the stronger lines of an engraving.

CONSTRUCTION OF AN OFFICE.

CHAPTER XV.

Construction of a Printing Office—Space required—Health of Workmen; Safety from Fire; Security of the Work, gained by a new mode of Drying the Sheets—Effectual mode of Warming and Ventilating an Office; Description of Apparatus—Best method of Lighting.

TO lay down any general system for erecting buildings for this purpose would be, in many instances, wholly useless; so much must depend on the relative circumstances of ground-plot, adjacent buildings affecting the light, height allowed, amount of business to be provided for, and various other considerations, that I feel some difficulty in the attempt. But if the supposition be allowed, that in the particulars of ground, light, capital to be expended, &c. there be ample latitude of speculation, it is very possible to lay down the general principles of a good and eligible plan, or at least such hints towards the formation of one, as may answer every necessary purpose. In the first place, I should think it an arrangement highly desirable, that the warehouse, or paper department, should be completely separated from the printing, or operative divisions of the business, as affording a great security, in addition to those that will be hereafter suggested, from the fatal effects of conflagration; this department might very conveniently form a detached wing of the building; and as a foundry for stereotype, oven, &c. for hot-pressing, and machinery in lieu of press-work, are becoming general appendages to a printing establishment of any magnitude, these might very well form the ground-floor of the other wing; the picking-room, lathe-room, &c. the upper floor; over each of these wings rooms for drying, on the plan of, and in addition to, what I shall presently describe. The centre building would comprise, on the basement, dry store-rooms for type, stand-

ing formes, safe-room for stereotype plates, wetting-room, and other necessary purposes: the ground-floor should contain the press-room, for let the success of machine-printing be ever so great, some presses must be retained; over this two or three floors of composing-rooms, reading-closets, manager's room, &c. &c.—the attic a drying-room.

However, as we must consider that printing establishments of any consequence are generally erected in cities and towns where land is too valuable to allow an unnecessarily extended ground-plot, adequate to such a spread of building, I shall now treat the subject as supposing nothing more than one on which an office must be erected as compactly as possible. I had to consider this matter a short time since, upon an opinion being asked as to the best plan for a printing-office about to be erected at the University of Cambridge; and, in concert with the best practical builder and fitter-up of printing-offices in this kingdom, Mr. Arding, formed a plan upon the principles which I have been laying down.

A parallelogram is decidedly the best form for a building for this specific purpose, and a width of twenty-five feet fully sufficient; as more would deprive the centre of the room of the advantage of light from either side. A common press with its bank takes up about eight feet; then say three feet clear passage way; in the centre a range of bulks for wrought-off paper, under which standings and racks for formes, say two feet more. This provides for a range of presses on each side: and in length of room 7 feet 6 inches to 8 feet may be calculated for each press, taking care that the posts or piers between the windows are arranged so that an uninterrupted light is secured to each press. For the composing-rooms the same width will allow a range of frames on each side, a clear passage, and a double row of imposing and correcting stones down the centre. The joists of all the floors should have short bearings, the floor boards to be grooved and tongued, and the ceilings, for many reasons, must be lath and plaster; any thing more than finishing the walls fair, and lime-washing, is quite unnecessary.

In building, or more strictly speaking, altering my present office, I have tried the experiment of a plan which I had long contemplated, of avoiding the drying of the worked-off paper over the heads of either compositors or pressmen: first, from a con-

sideration for the health of those employed; secondly, with a view to the danger from the easy communication of fire from their candles, or any other light, to the sheets on the poles, when, from being dry, and the edges curling, the flames would rapidly spread; thirdly, the dust arising from the various movements about an office; and last, but not least, the safety of the sheets from being either taken off the poles by sudden draughts of air, and becoming soiled in the fall or handling, or for purposes of curiosity or fraud. As to the health of the workmen, it is very true that habit conquers many causes of ill-health to the human frame: the boys of a great public school are brought up to carry the covering for their heads constantly in their hands, and go bare-headed in all weathers, since they would not be reckoned *true blues* if that piece of apparel was ever seen in its proper place: still I hold the opinion that the suspension of wet paper immediately over the bare heads of working people, and the evaporation consequent upon the drying pervading the whole atmosphere of the room, must be highly detrimental to their healths. This was my strong and concluding reason, in addition to that of the danger from fire: but with respect to the latter, I have been often astonished, that any printing-office, as they are usually constructed out of old houses, low rooms, dry wainscots, and rotten floors, ever stood a candle-light season. I determined to try a mode for obviating altogether these inconveniences and dangers: first, by abandoning the plan of *poling* the working-rooms, I was enabled to keep my ceilings eighteen inches or two feet lower, this in two floors gained me above three feet, and then taking the rake of the rafters of the roof, I gained an upper room without going a foot higher in the building; the difficulty was, how, in any one such room, to make an arrangement for hanging as many sheets as the floors below would have contained in the usual manner; this, however, was obviated by the contrivance of tiers of poles suspended in rows within a foot of the floor, six inches apart, by means of cords passing through each end, and kept fourteen inches apart by hollow turned truncheons, suspended by a ring to an iron rod attached to the ceiling. By sliding on the rods the poles can be packed together; the boy then detaches one section of poles to a short distance, or its proper place, and with a short peel hangs the sheets in the usual way; then a second section, and so on till all are full. The

quantity which a small room will contain upon this plan is really surprising. I have in one apartment, which in fact would otherwise have been useless, or a mere cock-loft, above three thousand feet of poling, perfectly secure from every contingency before mentioned; for, by having the doors or flaps cased with plate iron, and not allowing any light to be carried there, or any person to enter but the hanger-up, I have absolute security in every respect in this department. The mode of conducting heat to dry the sheets will be by-and-by described. The warehouse I have on the ground-floor, and this being sufficiently lofty, I allow common poling there, because (particularly as my lights are all fixed) not attended with any of the dangers before-mentioned as forming the defects of the old system, as well as to allow of occasionally hang-up works, wrought off too late in the day to allow of being carried up to the regular drying-room.

There are two departments of the economy of a printing-office which would appear to be thought of the very *least* importance, as if they were absolute nuisances, and as such shifted off to any holes and corners of the building, unfit for any other purpose, where they, consequently, must be hid from the general superintendence of the master and manager. Now, I esteem these departments of the *first* consequence; every thing perfect in composition, and good in press-work, depends upon them; the eye and attention of the master ought to be continually glancing at them, without being obliged, at the same time, to be under the observation of the workmen. Now of these two departments,

First—The Reading-Rooms.

These are usually screwed up in an attic, or some corner or closet not applicable to any other purpose; and if more than one are employed, often as far off from each other as the building will admit: now, I advise and practise a totally different plan: let the reading department be all together, separate closets, but all enclosed by one general door; place it as near as possible to the master's or manager's room: it is with that part of his business he must have the most frequent communication, as the progress of the reading must indicate the progress of every other part of the office; and frequent occasion must occur in which inquiry as to the state of the proofs will be the readiest answer to his employers. It keeps the readers apart and independent of the compositors, for

although harmony between all employed is truly desirable, yet I never wish to see readers and compositors too intimate.

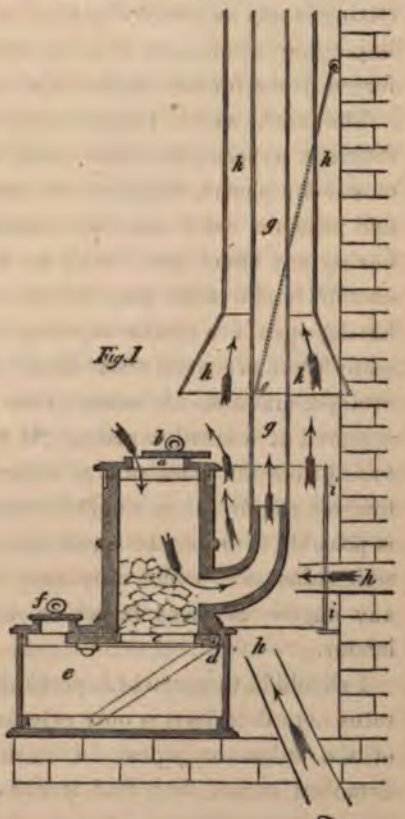
Secondly—The Wetting-Room,

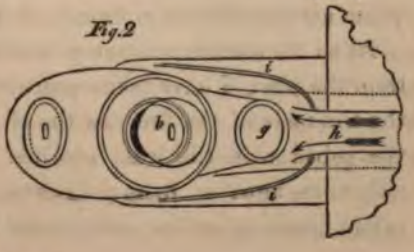
Is the other department to which I allude. Here it is that the first process of the actual printing commences, and the press-men are to begin their work upon a substance, the chief recommendation of which is, its delicacy of colour; yet, by some perversion of judgment, in nearly every printing-office which has come under my inspection, it has appeared as if the place for this process was sought for out of the very refuse part of the whole premises, where neither light nor air were thought of any consequence, provided water were obtained; and it also generally happens that such a situation is alike exposed to every filthy purpose that may be the consequence of many men and boys working under the same roof: here it is, that waste and pillage of our employers' property, if unfortunately a dishonest man or boy should be in the house, is effected, either for the purpose of making away with the paper, for sale, as it comes from the warehouse-man's hands, or abstracting from one heap to supply the waste and spoil of another, or working surreptitious copies. To avoid all this, I would choose a room in the most central, safe, clean, and convenient part of the house, between the warehouse and press-room, where good light, free ventilation, and an ample supply of water, are to be obtained; to this room I would allow access to none but the wetter, and the foreman of the press-room; no pressman should have any paper out of it but by his direction, and, generally, in his presence. No washing of hands, or other process which can leave dirt or grease behind, should ever be effected in this room; ample cisterns and troughs of water, never used for any other purpose, should be provided: of course, great precautions must be used to prevent the effects of any accident or overflow; the room must be floored and lined breast high all round with lead, so that no splashing, or dripping from the sinks, troughs, or wet heaps, can ever get to the wood-work; proper water-channels and outlets must be provided, and the lead floor covered by an open platform of wood-work, consisting of planks joined in such a manner as to admit of their being conveniently removed for the purpose of cleansing; proper stages for the paper should be fitted to the sides of the room.

OF APPLYING HEAT AND VENTILATION TO A PRINTING-OFFICE.

A METHOD by which to warm a building to effect the objects of drying the paper and rendering the workmen comfortable, with, at the same time, a due regard to the great objects of safety, economy, and health, will be acknowledged an important consideration. For any success which I may have had in this pursuit, I am indebted to Mr. Jacob Perkins, who, on his first arrival in this country from America, in order to introduce his system of security from forgery of the circulating paper medium, brought this mode of increasing heat and ventilation forward among the first of many other valuable applications of mechanic science, by which this country has been benefited by his emigration. This mode of imparting heat is more particularly applicable and valuable to any erection or large building, not divided into suites of small rooms. I first tried the experiment in a building consisting of four floors, all, with the exception of two small reading-closets, open rooms, above fifty feet long. The apparatus consists of one cast-iron cylinder, about 16 inches diameter, by 21 high, having a grating at bottom, and an opening at top: very near the bottom is the entrance to the smoke, or heated gas, flue, turning up, as an elbow, eight or ten inches from the body, being cast in one mould; about six inches upwards, this is joined by a pipe, about eight inches diameter, of wrought plate-iron, which is continued to the air or chimney into which it may be conducted. At about the distance of twelve inches from the top of the cylinder commences, with a larger mouth, or inverted funnel, a tube to surround the other, of eighteen inches diameter, which is continued to the upper floor, having openings in each story for the emission of the warm air, regulated by sliders or valves. At the back of the cylinder there must be a strong air draught, either by an opening and pipe, 14 inches diameter, communicating through the wall with the open air, or led through some other part of the building by an air-trunk, or some other suitable contrivance, according to the circumstances of the building. The cylinder is now to be charged for the fire, from the opening at the top; first, with the coal and coke, next the wood, next the paper and shavings, and

then the light; and the whole will become very soon ignited. In this apparatus the air to supply the combustion entering at the top, and drawing through every orifice of the contents, the smoke will be immediately consumed, or form hot gas, which will ascend the inner flue, the tube surrounding which being filled with fresh air from the opening or induction before mentioned at the back of the cylinder; which, by circulating round the inner, or heated tube, will become slightly rarified, rush rapidly upwards, and by the openings before mentioned distribute to each room a genial warmth. Perhaps, by this description, the mode of operation will be nearly understood; but as it is a matter of some importance, I shall elucidate it by an engraving, showing a section of the stove, and portion of the pipes. *a* is the top of the cylinder, at which the fuel is supplied; *b* the cover; *c* the grating at bottom, attached by a hinge at the back *d*, and held in its place by an iron button *e*; *f* the stand for the cylinder, forming the ash pit, having a cover; *g g* the inner flue, or smoke pipe; *k k* the outer, or air pipe; *h* air pipes for admission of fresh air from the outside of the building, directed by the iron screen *i i* to impinge on the flue and stove. The minor arrangements, and the valves and openings into the rooms must be regulated according to circumstances. The cylinder must, of course, have a





stand, and a reservoir or ash pit below it, to be cleared out occasionally; this, when the fire is first lit, must be, for a short time, opened, by moving the cover, and the top of the cylinder closed; at this time the fire is acting as a common furnace, sending smoke, unconverted into gas, up the flue or chimney; but when fairly lit, this lower opening must be closed, and the top of the cylinder opened; when the complete supply of heat commences, by the consumption of the smoke, and converting it into heated gas. The floor in which the apparatus is standing (fixing is not required) obtains a share of heat, by part of the air impinging against the cylinder and elbow becoming warmed, and forced to the further parts of the room.

The heat, which I have before called genial, affords so very different a sensation from that usually obtained by means of closed fire places, furnaces, or stoves, as to strike with surprise and pleasure every one who experiences its effects; so far from having any effect prejudicial to health, the sensation is that of comfort and a freer play of the lungs; every inconvenience of having open fire places in every room of a printing-office (and many there are even above those felt in other situations) is thus avoided, and absolute safety, from either accident or loss of time, acquired at a small expense. If the dryest sheets of paper were to fall from the poles of a printing-office, instead of being drawn towards the fire, they would be repelled, and no heat, to which it is possible to bring the outer tube, can ignite the most combustible substance, while it is easy to throw into any floor, almost any degree of heat in which workmen ought to pursue their labour.

I should have remarked, perhaps, before this time, that the apparatus here described is only calculated for a perpendicular position of the tubes or pipes. I have two horizontal branches for detached rooms, but find it difficult to direct a current of the warm air from the main tube in those directions.

As to the situation in the premises, in both cases where I have tried the plan, I have taken positions, where, by cutting through the trimmers of the fire hearths of the upper floors, I could pass the tubes with the least possible inconvenience or interruption either to light or room; always, as a preliminary movement, bricking up, or arching over, all the fire places. However, were the

apparatus to be fixed at one end of a very long and narrow building, say fifty feet or upwards, I would reserve a small fire-place at the other; as, in very cold weather, and but little air stirring, such a contrivance, with a very small fire indeed, would induce an action of the apparatus and produce a draught to the warm air, which could not otherwise be obtained. As to the fuel most advantageous to the purpose, I find a mixture of coke and very small coal, answer best, but the stove will burn any kind of fuel. The draught is regulated by the cover at the top of the cylinder, which, when closed, keeps the fire in almost a quiescent state; when opened, the air rushes downwards, through the fuel, with a roaring noise. No cleansing of the flue has been found necessary in mine: the chimney, into which it is turned, requires the usual attention. One other little addition ought not to be omitted; the introduction of so much warmed air produces sometimes a sensation of an over-dried atmosphere; this is remedied by having a vessel, containing water, on the top of the cylinder; a gentle evaporation arises from this, which moistens and softens the air and renders it perfectly pleasant and agreeable.

The consumption of fuel to effect all these purposes of warming and drying a whole building is comparatively trifling: such as I have been describing consumes about the quantity of two fire-grates; I must have had ten or twelve constantly burning in the old way: the saving in the time of boys lighting fires, clearing cinders, supplying coals, &c. &c. is pretty considerable; soon defraying the original cost of the apparatus, which, now that experiment and use have made the workmanship plain and easy, will not exceeed £40 or £50 for a large building, exclusive of any horizontal branches, which, as I have said, are not to be recommended.

The Society of Arts gave Mr. Perkins their large silver medal for his communication upon this mode of heat and ventilation. The first paper upon which will be found in vol. 38, p. 80, plate 7; and a subsequent paper, with some improvements, in vol. 39, p. 138, plate 7: the drawing in the last reference was made from the apparatus in my office.

For lighting a printing-office there are but two ways at the option of every situation; namely, tallow and oil; the last I think

the worst. Where the situation admits of the application of gas, that is superior to any other in light, safety, and economy. Burners must of course be fixed wherever a light is likely to be wanted. I use the *burner* reversed, with only one flame, from a hole in the side; this gives a long flame, taking a serpentine form, in a horizontal direction, and prevents any tricks being played by the enlargement of the holes with the compositor's bodkin. In some particular situations I allow two jets of flame. To each Press a double flame on the off side, and one extra suspended from the ceiling, or attached to the columns or walls, to every two presses, in a line with the extremity of the banks. The Compositors have one single flame to each frame, and a double one over each stone. All these must have horizontal swing joints to turn from the Roman to the Italic; and for the pressmen, to suit the various positions for laying the sheet on the tympans, the pointing, &c. The Readers are allowed each a small Argand and glass. The supply of gas, to give mutual satisfaction to manufacturer and consumer, must be regulated and charged by a gas-meter; the present price is 15*s*. per 1,000 cubic feet. This mode of light I consider as being perfectly safe: each flame has a fixed position, or only allowing an horizontal range of its lower joint; a stop-cock in the main service to each floor, and one master-cock at the entrance, serves as perfect security from any waste of gas. A secure lanthorn is the only portable light which should be allowed.

STEREOTYPE PRINTING.

CHAPTER XVI.

SECTION I.

General Description of the Process—Origin of the Principle—Modern application—Van der Mey's process of forming Type into solid blocks, not Plates—Mr. Tilloch's Statement—Mr. Nichols's account of Ged's Stereotype—Mr. Tilloch's invention of a similar process fifty years afterwards—Didot—Lord Stanhope and Mr. Wilson.

THIS method of printing, or rather auxilium of the art, though not by any means a late invention, was revived and brought into modern practice by that scientific and public-spirited nobleman, Earl Stanhope, whose hitherto unpublished manuscript on the subject will be introduced in a description of the process given in the subsequent pages. As the subject upon which I am entering has, of late years, given rise to considerable discussion, and as it truly is, in many respects, of the utmost importance to printers and booksellers, it would not be proper to pass it lightly over.

The mode of operation may be shortly described thus:—The pages must be set up in the usual way with fusil types of the common make, but cast higher shanked, and supplied with spaces, quadrats, &c. of a peculiar height, as will be hereafter described. The pages are imposed, one, two, or more together, according to their size, in a small chase. From this forme a mould is taken, *en creux*,* in calcined gypsum, or plaster of Paris; and from this

* "A punch *in relievo* forms a matrix *en creux*, and this matrix produces a type *in relievo*: such are the common types. If the punch be *en creux*, the matrix will be *in relievo*, and the type *en creux*; and the effect of this type will be the reverse of the effect of the former."—Mores, p. 67, *n*. Stereotyping, then, is the application of this principle to a body or forme of types.

Many attempts have been made at another species of transfer, upon similar

mould a cast of metal, having the face of whatsoever types it contains, *in relief*, in one plane surface, forming a plate of metal about a Pica or Small Pica in thickness.

This part of my work will be divided into five sections, in the first of which I shall treat of the origin of the invention—in the second, of its utility—in the third, of the mode of practice—in the fourth, of recent inventions and variations—and in the fifth, of mounting the plates for the press.

Concerning the origin of this branch of the art, it may be said, that *the principle* of stereotype-printing, namely, the application of fixed immoveable blocks or pages which, once formed, would remain so far perfect as long as they endured free from damage, and by means of which the work could be frequently put to press, according as the demand might require, without incurring the expense of re-composition, and possessing all the advantages of preventing a great outlay of expense in paper and press-work, is coeval with the origin of printing. The modern stereotype art embraces the advantages afforded by the improvement of moveable fusil types in the easier and less expensive formation of the block or plate.

principles, from engraved copper-plates. The chief difficulty in effecting this has been, to invent such a combination of metals as will flux sufficiently, by a moderate heat, to receive the impression of the finest protruding parts of the mould (supposing that to have been perfectly taken), and will condense of equal hardness with beaten, rolled, or planished copper. This has not, as yet, been effected upon any certain or general scale: nor, if it were, do I believe that it can ever become of general practice or utility. But be this as it may, novelty is out of the question. A process very similar was partially effected at a period nearly coeval with the origin of printing, which undoubtedly laid the foundation of copper-plate printing. [See the article, in the Introduction, upon the engravings of Maso Finiguerra.]

The transfer of engravings has been most effectually accomplished by the Siderography of Mr. Perkins; but in this process the engraving must be previously executed upon steel, from which it is transferred to the copper.

I have made transfers by the stereotype process, with hard metal, of some very delicately engraved portraits, which to the naked eye look as perfect as the coppers themselves; but when brought to the test of the rolling-press, the porous nature of the metal occasions it to absorb the oil and ink, and the impression has a dark dingy appearance. Mr. Armstrong, an eminent engraver, thinks he has succeeded in this object both as to metal and process; but I have not yet seen his proofs of success.

Upon the question of the origin of the invention, as at present practised, Mr. Tilloch, editor of the Philosophical Magazine, has given in the tenth volume of that work, the following extract translated from a Dutch writer. "Above a hundred years ago the Dutch were in possession of the art of printing with solid or fixed types, which, in every respect, was superior to that of Didot's stereotype. It may, however, be readily comprehended that these letters were not cut in so elegant a manner, especially when we reflect on the progress which typography has made since that period. Samuel and J. Luchtmans, booksellers at Leyden, have still in their possession the formes of a quarto Bible, which were constructed in this ingenious manner. Many thousand impressions were thrown off, which are in every body's hands, and the letters are still good.

"The inventor of this useful art was J. Van der Mey, father of the well-known painter of that name. About the end of the 16th century he resided at Leyden. With the assistance of Muller, the clergyman of the German congregation there, who carefully superintended the correction, he prepared and cast the plates for the above-mentioned quarto Bible. This Bible he published also in folio, with large margins ornamented with figures, the formes of which are still in the hands of Elwe, bookseller at Amsterdam; also an English New Testament, and Schauf's Syriac Dictionary, the formes of which were melted down; and likewise a small Greek Testament in 18mo."

Since these pages were first compiled, a very intelligent and useful work has appeared, which I strongly recommend to the reading of all who make the art of printing either their business or amusement. "An Essay on the Origin and Progress of STEREOTYPE PRINTING: including a description of the various Processes. By Thomas Hodgson. Newcastle: printed by and for S. Hodgson, &c. 1820." Mr. Hodgson lays claim "to little merit beyond that of collecting into one publication a variety of information, which either lay scattered in different works, or was unknown to the generality of English readers." It is plain from his work, that he is equally excellent either as author or printer; without, however, any practical knowledge of the stereotype branch of the art. Considerable extracts are made by Mr. Hodgson from the Memoir of M. Camus "*Histoire de Stéréotypie*,"

bring forward some plates of a calendar to a prayer-book, formed of *copper*, the workmanship of which is very rude and imperfect, as corroborative of their priority in the art. But these plates are entirely without a date as to the time of their execution, or the name of the workman by whom they were produced. Upon the assertion, however, of a compositor eighty years of age, and speaking from his memory in 1801 or 1802, that he had seen the plates used previous to the year 1735, it has been assumed that they were productions of the latter end of the seventeenth century. Now, even granting that this workman had seen plates used, previous to the year 1735, in Paris, it would be too much to give up to such argument the claim of the invention, when on this side the water we have positive names and dates of about the same period to show that the art was then practised in this and the sister-kingdom; that Mr. Ged, of Edinburgh, and Mr. Fenner and Mr. James, of London, absolutely cast plates for Bibles and Prayer-books in the University of Cambridge, in the year 1729-30.

The Dutch extract continues :—" As far as is known, Van der Mey printed nothing else in this manner; and the art of preparing solid blocks was lost at his death, or, at least, was not afterwards employed. The cause may readily be conceived; for, though this process in itself is very advantageous, it is far more expensive than the usual method of printing, except in those cases when such works are to be printed as are indispensably necessary, and of standing worth."—*Niew Algemein Konst en Letter Bode,* 1798, *No.* 232.

" If," says Mr. Tilloch, see p. 477, " founding could be applied to single letters, why not to pages, to get rid of a sacrifice of capital submitted to at first, because of the enormous expense of block-cutting! Founding of pages, on the first view of it, promises many advantages in point of economy; and to science it holds out, what can never otherwise be obtained—the possibility of procuring, in a short time, *IMMACULATE EDITIONS!** From books cast into solid pages, no more copies would be printed than might be wanted for immediate sale; the money thus saved from being sunk in paper to be piled up in warehouses for years, as at present, would serve as surplus capital to print other works; and thus the printer, his workmen, and the booksellers, would all

* More of this in the sequel.

be benefited (for it would be easy to prove, did our present limits allow it, that not only the business of the pressmen, but of the compositors, would be materially benefited and increased by the general adoption of such an improvement),* and all errors, as soon as discovered, could be rectified in the plates, to prevent them from appearing in after copies, instead of running through a large edition, as at present."

"In the year 1781, Mr. Nichols published an interesting pamphlet, entitled, 'Biographical Memoirs of William Ged;' including a particular account of his progress in the art of block-printing. The first part of the pamphlet, as the editor informs us, was printed from an MS. dictated by Ged some time before his death; the second part was written by his daughter, for whose benefit the profits of the publication were intended; the third was a copy of proposals that had been published by Mr. Ged's son in 1751, for reviving his father's art; and to the whole was added Mr. Mores's narrative of block-printing.†

"From this publication it appears, that so far back as the year 1725, Mr. Ged had begun to prosecute plate-making. In 1727 he entered into a contract with a person who had a little capital, but who, on conversing with some printer, got so intimidated, that at the end of two years he had laid out only twenty-two pounds. In 1729 he entered into a new contract with a Mr. Fenner, Thomas James a type-founder, and John James an architect. Some time after, a privilege was obtained from the University of

* The experience of years has not proved this fact.

† This narrative gives rather a different account of the affair. It makes *Fenner* the original projector, and adds *James Gadd* at the tail of the partnership, "Who," he says, "was in the rebellion of 1745, a captain in Perth's regiment, was arraigned of high treason, pleaded guilty, and begged to be recommended to mercy; and his life was spared on account of his knowledge in this method of printing, which was thought to be useful: after he had obtained his pardon, he followed his business for some time as a journey-man, with Mr. Bettenham; afterwards, he commenced master for himself at a house in *Denmark*-court in the Strand: unsuccessful there, he privately shipped off himself and his materials for the other side of the *Atlantic*; and whether it were, that having escaped the *one* fatality he met with the *other* we know not; but nothing hath since been heard of him."—*Mores*, p. 61, 62.—This I have since found contradicted by Mr. Hodgson.

The pamphlet has been lately re-printed by Mr. Hodgson, of Newcastle.

Cambridge to print Bibles and Prayer-books. But it appears that one of his partners was actually averse to the success of the plan, and engaged such people for the work as he thought most likely to spoil it. A straggling workman who had wrought there, informed Mr. Mores, that both Bibles and Common-Prayer books had been printed, but that the compositors, when they corrected one fault, made purposely half a dozen more, and the pressmen, when the masters were absent, battered the letter in aid of the compositors. In consequence of these base proceedings, the books were suppressed by authority, and the plates sent to the King's printing-house, and from thence to Mr. Caslon's foundery.†

"After much ill usage, Ged, who appears to have been a person of great honesty and simplicity, returned to Edinburgh. His friends were anxious that a specimen of his art should be published, which was at last done by subscription. His son, James Ged, who had been apprenticed to a printer, with the consent of his master set up the formes in the night-time, when the other compositors were gone, for his father to cast the plates from; by which means Sallust was finished in 1736."* Of this work Mr. Tilloch has a copy, and the plate of one of the pages; as also of another work, printed some years after, from plates of Mr. Ged's manufacture. The book is "The Life of God in the Soul of Man," printed on a writing pot, 12mo, and with the following imprint: "Newcastle; printed and sold by John White, from plates made by William Ged, Goldsmith in Edinburgh, 1742." It is a very neat little volume, and is as well printed as books generally were at the time.

"Fifty years after the invention of Ged, Mr. Tilloch made a similar discovery without having, at the time, any knowledge of Ged's invention.‡ In perfecting the invention, Mr. Tilloch had

* "The only successful experiment of Ged was a clumsy *Sallust*, in 8vo." Dibd. Dec. 343, *n*.

† But a remnant escaped from Caslon's cormorant crucible; and I have the opportunity of here presenting my readers with an opposite view of a pair of the very malefactors; and challenge any other to dispute the palm of venerable antiquity with them; they have been rather roughly treated, but besides the purpose for which they are here exhibited, will serve to show the style of type, typography, and stereotype of those days.

‡ Mr. Tilloch says so in the Philosophical Magazine; and, therefore, we must suppose he had not, at that time, seen the narrative, just read,

the assistance and joint labour of Mr. Foulis, printer to the University of Glasgow. After great labour, and many experiments, these gentlemen 'overcame every difficulty, and were able to produce plates, the impressions from which could not be distinguished from those taken from the types from which they were cast.'

"Though we had reason to fear, from what we found Ged had met with, that our efforts would experience a similar opposition from prejudice and ignorance,* we persevered in our object for a considerable time, and at last resolved to take out patents for England and Scotland, to secure to ourselves, for the usual term, the benefits of our invention."

of Mr. Rowe Mores's Books, dated 1778, in which a tolerable outline is given of the practice of stereotyping, although not under so learned a name; but quite sufficient, if *any body else* had happened to have seen it at the time, to have raised a competitor to Messrs. Tilloch and Foulis.

* Of course, if they came Southward.

GEO E R.

OUR *Will and Pleasure is, That this Form of Prayer with Thanksgiving for the Eleventh Day of* June, *be forthwith Printed and Published, and be used yearly on the said Day, in all Cathedral and Collegiate Churches and Chapels, in all Chapels of Colleges and Halls within both Our Universities, and of Our Colleges of* Eaton *and* Winchester, *and in all Parish-Churches and Chapels within Our Kingdom of* England, *Dominion of* Wales, *and Town of* Berwick *upon* Tweed.

Given at our Court at St. *James's* the Fourteenth Day of *May*, 1728. In the First Year of Our Reign.

¶ *The Service shall be the same with the usual Office for Holy-days in all things; except where it is in this Office otherwise appointed.*

¶ *This day being the Festival of the Apostle St.* Barnabas, *the proper Office for that Day shall be wholly omitted, and this used instead of it; and there shall be notice thereof given publickly in the Church the Sunday before.*

¶ *If this Day shall happen to be* Whitsunday, *the Collects of the Office shall be added to the Office of that Festival in their proper places. And if* Monday, *or* Tuesday, *in* Whitsun-Week, *or* Trinity Sunday, *the* Proper Psalms *here appointed for this Day instead of those of ordinary course, shall be also used, and the* Collects *added as before: And in all these cases, the rest of the Office shall be omitted. But if it shall happen to be any other* Sunday, *this whole Office shall be used as it followeth, entirely. And what Festival soever shall happen to fall upon this solemn Day of Thanksgiving, the* Hymn *appointed instead of* Venite, exultemus, *shall be constantly used.*

¶ *Morning Prayer shall begin with these Sentences:*

I Exhort that first of all, Supplications, Prayers, Intercessions, and giving of thanks, be made for all men: for Kings, and for all that are in Authority; That we may lead a quiet and peaceable life in all godliness and honesty: For this is good and acceptable unto God our Saviour. 1 *Tim.* 2. 1, 2, 3.

If we say that we have no sin, we deceive our selves, and the truth is not in us; But if we confess our sins, he is faithful and just to forgive us our sins, and to cleanse us from all unrighteousness. 1 S. *John* 1. 8, 9.

¶ *Instead of* Venite, exultemus, *the Hymn following shall be said or sung: one Verse by the Priest, and another by the Clerk and people.*

O Lord our Governour: how excellent is thy Name in all the world! *Psal.* 8. 1.

Lord, what is man, that thou hast such respect unto him: or the son of man, that thou so regardest him! Psal. 144. 3.

The merciful and gracious Lord hath so done his marvellous works: that they ought to be had in remembrance. *Psal.* 111. 4.

O that men would therefore praise the Lord for his goodness: and declare the wonders that he doth for the children of men! Psal. 107. 21.

Behold, O God our Defender: and look upon the face of thine Anointed. *Psal.* 84. 9.

O hold thou up his goings in thy paths: that his footsteps slip not. Psal. 17. 5.

Grant the King a long life: and make him glad with the joy of thy countenance. *Psal.* 61. 6. & 21. 6.

Owing to circumstances of a private nature, not connected with the stereotype art, the business was laid aside for a time, and Mr. Tilloch having removed from Glasgow to London, the concern was dropped altogether; but not till several volumes had been stereotyped and printed, under the direction of Messrs. Tilloch and Foulis.

Some time elapsed after this, when Didot, the celebrated French printer, applied the stereotype art to Logarithmic Tables,* and, afterwards, to several of the Latin classics, and to various French publications. It has been said, by the French, that the merit of the invention properly belongs to Didot; but, by what we have already laid before our readers, it is evident this cannot have been the case.

Some years after Mr. Tilloch had given up the prosecution of this art, Mr. Wilson, a printer of respectability in London, engaged with Earl Stanhope, for the purpose of bringing it to perfection, and eventually to establish it in this country. His lordship, it is said, received his instructions from Mr. Tilloch, and had afterwards the personal attendance of Mr. Foulis, for many months, at his seat at Chevening, where his lordship was initiated in the practical part of the operation, and, for which, we have been informed, he paid eight hundred pounds.

After two years application, Mr. Wilson announced to the public, "that the genius and perseverance of Earl Stanhope," whom he styles the inventor,† "had overcome every difficulty; and that, accordingly, the various processes of the stereotype art had been so admirably contrived, combining the most beautiful simplicity with the most desirable economy; the *ne plus ultra* of perfection, with that of cheapness."

In January, 1804, the stereotype art (with the approbation of Lord Stanhope) was offered, by Mr. Wilson, to the University of Cambridge, for their adoption and use in the printing of Bibles, Testaments, and Prayer-Books, upon certain terms and conditions;‡ and, both at Cambridge and Oxford, Bibles, Testaments,

* This I doubt—*vide post*.

† Earl Stanhope had too much candour to call himself so.

‡ One of which was said to be, paying Mr. Wilson four thousand pounds for the *secret* of the *new invention!*

&c. have been very generally printed by this process. Stereotyping is much used, and very advantageously, for Primers, Spelling-books, School-books, Religious Tracts, and other works requiring no variation of editions, or great excellence of execution.

ADVANTAGES OF STEREOTYPE.

SECTION II.

Inquiry as to the probable Advantages of Stereotype—Controversy on the subject—Mr. Wilson's Reply, and Propositions in favour—Arguments in opposition—Calculations of relative Expenses.

HAVING thus detailed the several pretensions to the credit of inventing the art of Stereotype Printing, and it being but of modern adoption, or revival, in this country, it may not be improper, in the next place, to offer o my readers a general view of the discussions which have arisen, and been made public, upon its probable utility, and its advantages as compared with that by moveable types. The following paragraph appeared in the Monthly Magazine for April 1807.

"Stereotype printing has not been adopted by the booksellers of London, because it does not appear that more than twenty or thirty works would warrant the expense of being cast in solid pages; consequently the cost of the preliminary arrangements would greatly exceed the advantages to be attained. On a calculation, it has appeared to be less expensive to keep certain works standing in moveable types, in which successive editions can be improved to any degree, than to provide the means for casting the same works in solid pages, which afterwards admits of little or no revision. As the extra expense of stereotyping is, in all works, equal to the expense of seven hundred and fifty copies,* it is obvious that this art is not applicable to new books, the sale of which cannot be ascertained.† Although these considerations have induced the publishers of London not to prefer this art in their respective businesses, yet it has been adopted by the Universities of Cambridge and Oxford; and from the former some very beau-

* How this calculation is made out, I am at a loss to understand.

† For this very reason, in some cases, it is the *most* applicable. *Vide post.*

tiful editions of Common-Prayer Books have issued to the public. Probably the art of stereotyping applies with greater advantage to staple works of such great and constant sale, as Prayer Books and Bibles, than to any other."

In the next number of that work, Mr. Wilson made the following remarks in contradiction to the above statement:—

"In this statement there are several mistakes, calculated to mislead the public mind. It is due from me, not to the *booksellers of London*, particularly, but to the booksellers, and to the PRINTERS too, of England, Scotland, and Ireland, to the masters of public schools and private seminaries, to the governors of institutions for the gratuitous circulation of books, to all persons interested in the faithful and economical education of youth of both sexes, and in general to the whole literary world—it is due from me to bring forward something more than bare assertion upon the present occasion; to state what really are the advantages peculiar to stereotype printing, which I presume I am rather better qualified to do than are those persons who know nothing of the subject. [Excellent!] The advantages arising from an application of the stereotype invention to the manufacture of books, are not confined to any particular department of the printing business. In every department of expenditure they are as self-evident* as profitable, and need only to be mentioned to be well understood.

"1st. The *wear of moveable types*, in stereotyping, does not exceed 5 per cent of the heavy expense incurred by the old method of printing.—2ndly. The expenditure upon *composition* and *reading* is nearly the same by both methods, for a first edition: but this great expense must be *repeated* for *every* succeeding edition from moveable types; whereas, by the stereotype plan *it ceases for ever*. —3rdly. The expense of *stereotype plates*, when I am employed to cast them, is not 20 per cent of that of moveable-type pages.—4thly. The expenditure upon *paper* and *press-work* is the same by both methods; but it is not incurred at the same time. The old method requires an advance of capital for a consumption of four years; whereas, by stereotype, half a year's stock is more than sufficient. It follows, therefore, that twelve and a half per cent of the capital hitherto employed in paper and press-work is fully adequate to meet an equal extent of sale.—5thly. A fire-proof room

* These *self-evident* propositions will be noticed in the sequel.

will hold stereotype plates of works, of which the dead stock in printed paper would require a warehouse twenty times the size; and thus *warehouse-rent* and *insurance* are saved; with the additional advantage, in case of accident by fire, that the stereotype plates may be instantly put to press, instead of going through the tedious operations of moveable-type printing; and thus no loss will be sustained from the works being out of print.—6thly. In stereotype, every page of the most extensive work has a separate plate; all the pages, therefore, of the said work, must be equally new and beautiful. By the old method, the types of each sheet are distributed, and with them the succeeding sheets are composed; so that, although the first few sheets of a volume may be well printed, the last part of the same volume, in consequence of the types being in a gradual state of wear as the work proceeds, will appear to be executed in a very inferior manner.—7thly. The stereotype art possesses a *security* against *error*, which must stamp every work so printed with a superiority of character that no book from moveable types ever can attain. What an important consideration it is, that the inaccuracies of language, the incorrectness of orthography, the blunders in punctuation, and the accidental mistakes that are continually occurring in the printing of works by moveable types, and to which every new edition superadds its own particular share of error—what a gratifying security it is, that all descriptions of error are not only completely cured by the stereotype invention, but that the certainty of the stereotype plates remaining correct, may be almost as fully relied on as if the possibility of error did not at all exist!—If these observations be just with reference to the printing of English books, how forcibly must they be felt when applied to the other languages generally taught in this country; how much more forcibly when applied to those languages which are the native dialects of the most ignorant classes throughout the United Kingdom, but which are as little understood as they are generally spoken!—8thly. Stereotype plates admit of alteration; and it will be found that they will yield at least twice the number of impressions that moveable types are capable of producing.—Lastly. All the preceding advantages may be perpetuated, by the facility with which stereotype plates are cast from stereotype plates.

"Such is a general outline of the present state of the stereotype

invention; and such are the obvious advantages arising from it to learning and to ignorance—to every state and condition of civilized life. From the whole it results, that a saving of 25 to 40 per cent will accrue to the public in the prices of all books of standard reputation and sale, which, I believe, are pretty accurately ascertained to comprehend THREE FOURTHS of all the *book*-printing of England, Scotland, and Ireland. It is fair to conclude, therefore, that the sales, both at home and abroad, will be considerably increased, and that the duties on paper will be proportionally productive; so that the public will be benefited in a twofold way by a general adoption and encouragement of the stereotype art. With this view, I think the period is now arrived when I ought to announce to all the respectable classes before-mentioned, particularly to printers and booksellers, that I am fully prepared to enable them to participate in the advantages to be derived from the stereotype art, in any way that may be most conducive to their particular interests, either individually or collectively."

We shall now, says Mr. Stower, state the arguments generally advanced in opposition to the practice of this invention.

"In the first place, the expense of the composition of every page (it being imposed separately, and two proofs, at least, taken from it before it can be in a proper state to undergo the process of making a plate from it) must be considerably greater than in the common mode.

"Secondly. In a first edition the bookseller has not only to pay for the higher-priced composition, but must be at the great expense of the stereotyping, which, in metal, independent of the charge for workmanship, is equal in weight to one fourth of the same work set up in moveable types.

"Thirdly. The printer in stereotype must use higher-priced presses than are now commonly used, and must consequently increase his charge per ream; for hitherto all stereotype works have been printed at the Stanhope press, and at these presses it has not been done at the *common price*.

"Fourthly. The shape and manner of the first edition *must* be continued, or the first expense must be again incurred; for no deviation as to plan or size can possibly take place, nor any advantage be reaped from the future improvements in the shape of types.

"Fifthly. The bookseller has, *at present*, the certainty, or nearly

the certainty, of detecting, particularly in town, any unjust advantage which might be taken of him, in point of number, by those with whom he intrusts his works: that important security will be wholly done away by plate-printing. He must also be subject to the loss sustained by the damage of plates (a highly probable circumstance), together with fraud by the '*facility with which stereotype plates are cast from stereotype plates.*'

"We shall not now enter into any particulars upon this last, which we conceive most important, objection to stereotyping; it is, however, an objection that will not lose weight by examination, and may be well worth the attention of those who are hesitating whether the OLD PRACTICE or the NEW is the *safest.*"

Thus far Mr. Stower.

In giving my general assent to the foregoing arguments advanced in opposition to the sanguine calculations and statements of the gentleman before alluded to, I shall take the opportunity of adding a few words, dictated by experience, upon such points as appear to have been too slightly urged in the reply; and of submitting such other arguments, on both sides the question, as seem to me necessary to be taken into consideration, in order to fairly determine how far stereotype printing may be of advantage either to the bookseller or to the public.

First Proposition.

"The wear of moveable types in stereotyping does not exceed 5 per cent of the heavy expense incurred by the old method of printing." Now, if this proposition is really meant to be taken in the plain common sense of words, without reference to the different weights of the founts necessary to be cast for the two respective methods, facts will bear me out in advancing directly the reverse. I have cast from both old and new types, and have no hesitation in affirming, that the wear and tear, in passing through the separate-page proving; through the process of moulding, and the requisite cleansing from the plaster, is as great to any page of type as would be suffered by *the working of ten thousand copies* at a good press, with good tympans and blankets. If, therefore, he mean, that a stereotype-founder may set up, or conduct his business with "5 per cent off the heavy expense incurred by the old

method of printing," I will oppose to his assertion the actual experience of any one who has made the trial, and which I am sure will support me in stating, that it will require an *addition* of from 5 to 10 per cent upon all capital employed in the composing department.—Thus far no advantage can be shown to arise to printer, bookseller, or public.

Second Proposition.

"The expenditure upon composition and reading is nearly the same by both methods, for a first edition: but this great expense must be repeated for every succeeding edition from moveable types; whereas, by the stereotype plan, it ceases for ever." Now, I say, that the expenditure, in the first instance, is *not* nearly the same, but full 10 per cent more upon the composition and reading; and with great justice. High spaces are a considerable hindrance to a compositor; imposing each page in a separate chase is extra trouble; pulling proofs, with which the compositor has nothing to do in general practice, and for which purpose two pressmen could not be called from their regular work to pull sixteen or twenty-four proofs in lieu of one, for a sheet of 8vo, or 12mo, without compensation —hindrance to the compositor in distributing, from the oil and particles of gypsum left in the interstices of the pages from the moulding process—the more frequent necessity of leaving his frame to impose, correct, lay-up, &c.—the greater quantity of proof-paper destroyed in pulling by pages rather than by sheets will be at least as three to one—the waste of lye in washing single pages—the hindrance to the reading-room in reading by single pages—the sending out proofs by single pages—as well as the greater wear of type, as confirmed in the preceding answer, are a combination of circumstances that sufficiently refute that part of the proposition which states the expense of composition, &c. to be "nearly the same," and which fully authorise me to say that 10 per cent addition to the common price would be barely adequate to repay the extra time and trouble required in the new process. And with respect to the second part, instead of the expense of composition being "wholly repeated for every succeeding edition from moveable types," I beg to say that subsequent editions may very well be taken at 10 per cent reduction of the terms from the first cost, as will be hereafter shown: and as to the assertion, that

by the stereotype plan, "*it ceases for ever,*" both reason and practice so flatly contradict it, that no further argument is necessary.

Third Proposition.

It would be difficult to argue this closely, because Mr. Wilson has not told us what he did charge when he was employed to cast plates.

Fourth Proposition.

Here it is alleged that, "the press-work is the same by both methods," which is *not the case,* for two reasons; first, because of greater trouble to the pressman in making ready; and secondly, because of going to press more frequently with short numbers, which is the very gist of the advantage held out by stereotype. The same proportion of price cannot be charged for working 500 or 250 as for 2,000. Four reams off type may very well be worked at $4\frac{1}{2}d.$ or $5d.$ *i. e.* $7s. \times 4s. = £1.\ 8s.$: but divided into single reams, or 500's, separate, off plates, they could not be done under $6d.$ *i. e.* $10s. \times 4s. = £2.$: and in 250's, even $7d$ or $8d.$ *i. e.* $12s. \times 4s. = £2.\ 8s.$ per 2,000, would not pay expenses and labour. And besides the additional labour or time of the pressman* in making ready the plates, the master is at considerable expense in blocks, or apparatus, upon which the plates are fixed and raised to the height of type, to which all presses and machinery are adapted. And further, to place, or lay down those plates, a compositor alone can be possessed of adequate skill, and his time must be valued—a proof must be pulled, folded and followed—batters and other accidents looked after and repaired, if the printer have any regard to the appearance of the work; and this cannot be expected to be done free of expense to the bookseller. Thus, I think, it is clearly shown, that the press-work of stereotype plates must come to more, even considering interest, than by the old method.

* Stereotype plates cannot be worked for the same price per ream as type-pages, unless a compensation is charged for the mounting and making ready: the trouble of preparation, to the pressmen, of even the very best-cast and most accurately-dressed plates, is considerable; and in very open works, from the height of the *field* of the plates, a frisket of the greatest accuracy, must be cut for each forme.

Fifth Proposition

is only true in part:—but who is to find the "fire-proof room," bookseller? or printer?

Sixth Proposition.

"Every page of the most extensive work has a separate plate: all the pages, therefore, of the said work, must be equally new and beautiful. By the old method the types of each sheet are distributed, and with them the succeeding sheets are composed; so that, although the few first sheets of a volume may be well printed, the last part of the same volume, in consequence of the types being in a gradual state of wear, as the work proceeds, will appear to be executed in a very inferior manner." This is a most captivating assertion, and although it may take some time to expose the fallacy of every point of this argument, it is necessary it should be done. Let us take the case, then, of an extensive work—say a quarto of one hundred sheets. To proceed with this work in *stereotype* it would be necessary to have type sufficient for eight pages.* The first four, call them A, B, C, D, are set up

* It is difficult to make our employers understand why as much should not be set up of a work when it is to be stereotyped, as when only the usual routine of printing is to be employed. In the outset of this article, mention was made [p. 815] of the peculiar type, spaces, &c. necessary for the process, and which may be again referred to [p. 844]; these peculiarities unfit the founts for ordinary work, and they ought not to be used, but for moulding from; the inventors of stereotype never contemplated the setting-up of their work in whole sheets; if that had appeared to them indispensable, I will venture the assertion, that stereotyping would never have been attempted. However, now it has become a practice for whole sheets to be set up, worked first, and then stereotyped: this obliges a printer to have his stereotype founts as large as any other, or else to have high-spaces, quadrats, leads, &c. as extras to his usual founts. It is, no doubt, possible, at great inconvenience, to mould from low spaces, &c. the mould will then require great force to be separated from the page, the gypsum will be partly left behind in every space between the words, and be liable to break in large blotches in other parts; in the casts from such moulds, independent of other imperfections, the plates will be in some parts exceedingly thin: and in others filled with metal equal to the surface of the letters—this gives great additional work for the picker and repairer; as also the compositor, who, previously to distributing, must pick, with a bodkin, the particles of dried plaster from between the words. If, on

and moulded from. While this is doing, four others, E, F, G, H, are being prepared. In what types, then, are the next four, I, K, L, M, to be set up? Those certainly which served for A, B, C, D. Thus, for the eight hundred pages *the same types* would be moulded and cast from, no less than *a hundred times.*

Now, in ordinary printing, how would it stand? No office in usual course of work could go on with such a volume with less than five sheets of letter. Thus, the types used for the first sheet, say B, would come round for the sixth sheet, G; and 800 pages is 100 sheets: the fives in 100 are 20: so that the same types would be imposed and worked from, just twenty times in the course of the work. Now, without any comment of mine—without referring to the argument before adduced concerning the wear of type by moulding, cleaning, &c. let any person, professional or not, look at the above statement, and judge of which of the two modes of typography it may with greatest truth be said, "that although the few first sheets of a volume may be well printed, the last part of the same volume, in consequence of the types being in a gradual state of wear and tear as the work proceeds, will appear to be executed *in a very inferior* manner."

Seventh Proposition.

"The stereotype art possesses a security against error, &c. that no book from moveable types *can ever attain.*" It is next assumed, with a confidence as though it were expected to be granted, that *the more editions the more errors*—"every new edition superadds its own particular share of error," a part of the proposition which I cannot admit without some qualification;*

the other hand, proper stereotyping materials be used, and the sheet worked before casting, it will be impossible to prevent the unseemly appearance of many spaces blacking between the words and quadrats, leads, &c. in other parts not closely protected by the surrounding type; and which it is the business of the picker to cut out from the plate. This will explain, to those not printers, the appearances which are so unsightly, in many of the periodical (chiefly weekly) publications of the present day. This mode of proceeding will also cause an addition of expense, for imposing and otherwise preparing the pages for the foundry, after working, the compositor having completed his routine, for his first charge per sheet, has nothing to do with the second process.

* There may be, and indeed I am sorry to confess, from my own experience, that there have been, many instances in which works, given out by compe-

and from my own experience in printing, and my commerce with those connected with the art, it would be inexcusable in me, on this occasion, not to protest against so gross a calumny, and to do justice to the respectable part of the press, by stating, that it is perfectly *in practice* for an edition to be rendered more correct than that which preceded it, and to be improved in every respect. We know, besides, that these plates are not exempt from the same accidents to which type formes are liable in their progress of working. Who can, with the utmost care, ensure that no accident in making ready, flying the frisket, &c. shall befal a plate as well as a page? A circumstance daily happening in every printing-office, and which the compositor is immediately called upon to repair: while it is possible that in stereotype plates such accidents may totally interrupt the work, and require the damaged plate to be sent to the foundry to be repaired, or perhaps, from the extent of the damage, must be re-set and re-cast. Repairs of this sort are done by the awkward process of taking out the damaged part, by perforation of the plate, and inserting types having their shanks reduced, and then soldered in their places. Now, as in the process of moulding and casting, contraction must take place in every stage; the natural consequence will be, that the type so inserted will have a larger face than the type of the plate. I mean most distinctly to assert this: I never saw a single letter inserted

tition of *lowest offer per sheet*, have, for the sake of a shilling or two under price, been taken from the houses which have had the trouble and labour of getting them up, often from the most imperfect and worst-written manuscripts in first editions—after much sending to and fro concerning copy and proofs—after a tedious correspondence with author by post or coach—after the breaking-in of compositors and reader to the peculiarities of author or editor—their looking forward, as a recompence for their time and toil, to the comparative ease of getting through future editions—that, after all, the reprint is perhaps submitted to a competition in price, when some master, who may unite in his own person the various departments of overseer, reader, and warehouse-man, will, to gain a little work, or a new connexion, make a reduced tender. These are the instances where nothing, more nor less, can be expected, than that of 'every new edition *superadding* its own particular share of error.' It would be wonderful, indeed, if it were not so. And it may here be added, that the office of reader is, when men of classical education are employed, the most delicate and expensive part of a printer's establishment. If that department be not judiciously and conscientiously attended to, the whole is merely "sounding brass and tinkling cymbals."

into a plate, which could not be distinguished by any practised eye: and no three or four letters together can possibly be introduced into the space of the same letters cut out of a plate in consequence of an accidental batter, or a failure in the casting, which is a very common occurrence. So that, even barring the chance of a letter or two not lining exactly, or not standing quite square with the other part, or any error being made in composition, the part amended must destroy the much-praised beauty and immaculateness of the stereotype work.

However, it must, in justice, be conceded to the other side, that even if a work has been read with all the attention possible both by printer and author, errors may escape; and even in re-printing from that edition, if its errors are detected, others may be made to the same amount; but in the case of stereotype plates the errors may be pointed out, and amended by the process I have just described, or even a page or pages be re-set and re-cast, while, in the other parts no errors can have been made.

Eighth Proposition.

"Stereotype-plates admit of alteration; and it will be found that they will yield at least twice the number of impressions that moveable types are capable of producing." Stereotype-plates certainly admit of alteration, as explained above: but as to working twice the number of impressions that moveable types are capable of producing, no one argument is offered to show even the probability of it. Only thus far it may prove true: being bookseller's property, they may work the plates twice, or ten times as long, perhaps, as they would allow a printer to work his type (at least they would take the advantage of changing the printer, if he would not promise a change for newer type), and would think the book doing well if it sold. But it is very well known that even type-metal is too hard to cast plates from. It must be lowered; that is, softened by an addition of lead: and though by frequent fusion it will require renovating by an addition of regulus of antimony, yet the hardest metal ever made for stereotype is only about one pound of regulus to four pounds of tea-lead; and it is even reckoned good enough if one to six be made the proportion: how then a softer metal than type will

yield *twice* the number of impressions (meaning, of course, with only equal deterioration of face), not being proved by any thing but bare assertion, must stand as one of those inconsistencies which requires only to be stated to be sufficiently exposed.

Ninth Proposition.

The list of benefits, as given by Mr. Wilson, concludes—"Lastly, all the preceding advantages may be perpetuated by the facility with which stereotype plates are cast from stereotype plates." One objection arising from this proposition, has been hinted at as very *probable,* in the fifth answer; but I have others which I think still more important to bring forward. It cannot, of course, in thus hunting after savings out of printer's work and profits, be meant to cast duplicates, or triplicates, &c. &c. of the plates in the first instance. Indeed the words can hardly be wrested to any other meaning but one; and that one I am anxious to bind it to: namely, that the advantages may be perpetuated by casting new plates from *the old ones!* Is it by thus multiplying stereotype-plates from stereotype-plates that works are to be renovated with "all their pages equally new and beautiful?" The very essence of stereotype consists in the faithful impression given of the original; and will not the stereotyper be prepared to see his new-cast plates exhibiting a fac-simile of every accident, imperfection, and effect of friction occasioned by the seven or eight years wear and tear of the original plates? Why any one would be a fool who would not rather determine to work his old plates everlastingly, than re-cast them, at a considerable expense, with all their blemishes and defects. What then is to be gained, let me ask, by the facility with which stereotype-plates may be cast from stereotype-plates?

As to the possibility of *fraud* by this vaunted facility, as hinted in the fifth answer, I think less of that than of any other point; because it does not always follow, that the plates shall remain in the hands of printers who are stereotypers, or that *they* can be the *only* rogues. Any thing unfair is far more likely to happen at the time of the *original casting*. It would require some little variation in the apparatus to mould from plates; but it would be about the easiest thing in the whole business to take duplicate moulds from the type originally. I have seen, where nothing improper was

attempted, duplicates, triplicates, and more, of pages cast only by taking so many moulds. In fact, I never yet heard, in my intercourse with the booksellers, a suspicion of such a fraud being effected as casting plates from plates, for the best of all reasons—it could, by a scientific man, be detected, *to a certainty*, in every page.

Tenth Proposition.

The next point of inquiry appears to be the SAVINGS. "From the whole it results that a saving of from 25 to 40 per cent will accrue to the public in the prices of all books of standard reputation and sale." If the works forming the far greater proportion of those to which stereotyping is most applicable, because in them no variation of text can possibly be wanting, namely, Bibles and Prayer-books, were open to a fair competition of trade, there might be some truth in this; but while those works are subjects of the monopoly to the patent printers, *the saving* is rather unequally divided, as those persons have hitherto kept the great advantages to their own share: still I would not be understood as denying that, by a judicious selection of works, and proper management, in liberal hands, the public may in some instances be benefited. Standard works of magnitude and expense, and consequently slow progress through the press, would require so large a capital to be sunk for workmanship and paper, before any returns could be made, that they would become so much enhanced in expense, as to prevent, perhaps altogether, the undertaking.

In Rees's Cyclopædia, Art. "Stereotype," is a calculation of the alleged advantages of stereotype, as given in a pamphlet published by Mr. Brightly, of Bungay, in Suffolk. "Mr. Brightly, who practised the method of stereotype for some years, having made several estimates, and who, being himself a printer* as well as publisher, could have no inducement to give an exaggerated statement on either side of the question, seems to doubt if there be any saving whatever in the new process." I have

* It may be said, that Mr. Brightly was not a printer by regular profession:—he was a schoolmaster, which pursuit he relinquished upon obtaining an insight into the typographic art at Bungay, in Suffolk. He carried on business to a great extent, and, from various circumstances, being enabled to do his work *very cheaply*, obtained a great deal of the London Booksellers' work, at a time when printing in London was in a state of considerable depression. He executed his business chiefly by *females!*

never been able to obtain even a sight of his publication. But Mr. Hodgson, in his Essay on Stereotype Printing, has given some very detailed calculations on the subject, which will be found well worthy consideration. I might not agree with him in the precise value of some parts of the workmanship, nor in assuming that any booksellers, particularly in the trade of the metropolis, would go to press with so small an impression as a half-year's consumption; at the same time, he having under-rated the expense of casting, his calculations may, upon the whole, approach very near to the truth; I shall give his statement in preference to Mr. Brightly's:—

"Mr. Wilson's concluding assertion that a saving of £25 to £40 per cent will accrue to the public in the prices of all books of standard reputation and sale, has been combated at some length by Mr. Brightly, who has entered into a variety of calculations to show the little probability there is of such a circumstance taking place. These calculations are made upon the supposition that the plates are charged according to Mr. Wilson's estimate of £20 per cent of the value of the types. The result is very unfavourable to stereotype printing, as whether the book be printed on pica or nonpareil, the original cost of the plates will not be defrayed till after the sale of more than three editions, and the saving in the price of each book can never be to the extent stated by Mr. Wilson. As, however, a different method of charging for the plates now generally prevails, much more favourable to stereotype, especially when the works are printed on small letter, I shall not copy these calculations, but insert others more consonant to the present practice of the trade. They will, I think, materially tend to give a proper view of the advantages and disadvantages of stereotype printing.

"I shall suppose, that a bookseller wanted to print a work of twenty sheets octavo, on long-primer letter, of which he sold, on the average, 1,000 copies annually; and examine what advantages or disadvantages will result from an impression of 4,000 copies, the common way, to last four years, and the same work on stereotype, 500 copies every six months; allowing the paper, in both cases, to cost him 30*s*. per ream.

PRICE OF COMMON PRINTING.

	£.	s.	d.
Composing by the scale price, at 21*s*. with profit thereon	31	10	0
Reading and profit on it	7	17	6
Presswork at 5*d*. or 8*s*. per ream	64	0	0
Total charge for printing . . .	103	7	6
160 Reams of paper, at 30*s*.	240	0	0
Cost price of 4,000 copies . . .	343	7	6

"To this must be added the interest of money; but as the bookseller is supposed to have one-eighth of his stock returned every six months, the interest on £343 7*s.* 6*d.* is not to be charged for the whole four years, but only on such parts successively as remain unsold—it may therefore be estimated thus:—

	£.	s.	d.		£.	s.	d.
For the first six months	343	7	6	=	8	11	8¼
Next ditto, seven-eighths unsold	300	9	3¾	=	7	10	2½
Ditto, six-eighths unsold	257	10	7½	=	6	8	9
Ditto, five-eighths unsold	214	12	2¼	=	5	7	3¾
Ditto, one-half unsold	171	11	8	=	4	5	10
Ditto, three-eighths unsold	128	15	3¾	=	3	4	4½
Ditto, one-fourth unsold	85	16	10½	=	2	2	10¾
Ditto, one-eighth unsold	42	18	5¼	=	1	1	5¼
Amount of interest					38	10	6
Cost price of 4,000					343	7	6
Total for a four years' consumption					381	18	0

"Let us now calculate the expense of the same work in the stereotype manner, six months' consumption being printed at a time.

PRICE OF STEREOTYPE.

	£.	s.	d.
Composition (a farthing extra) 22*s.* with profit	33	10	0
Reading, with profit on it	8	5	0
Press-work on 500, at 6*d.* or 10*s.* per ream (though 12*s.* has been regularly paid for 500)	10	0	0
Expense of printing	51	5	0
Casting of plates at 40*s.* per sheet (Mr. Wilson's estimate would be at least 70*s.*)	40	0	0
Twenty reams of paper at 30*s.*	30	0	0
	121	5	0
Interest for six months	3	0	7½
Cost of first 500	124	5	7½

SECOND EDITION OF 500.

	£.	s.	d.
Paper	30	0	0
Press-work, as before	10	0	0
	40	0	0
Interest for six months	1	0	0
Ditto on composition, reading, and plates, expended on first edition	2	0	10½
Cost of second 500	43	0	10½

	£.	s.	d.
(Brought forward) Cost of second 500 .	43	0	10½
Multiply this seven times			7
	301	6	1½
Add cost of first edition of 500 . . .	124	5	7½
Price of 4,000 by stereotype printing .	425	11	9
Ditto by ordinary printing . . .	981	18	0
Balance against stereotype at the end of 4 years	43	13	9

SECOND EDITION OF 4,000.

"The money expended on the composition and reading of the first stereotype edition will now have been nearly returned; interest, therefore, ought only, in the subsequent editions, to be charged for the balance remaining due at the end of the first four years; but as the plates will have been some time in use, a charge will now begin to be made for repairs, &c. The expense of the subsequent stereotype editions of 500 will therefore stand thus:—

	£.	s.	d.
Paper	30	0	0
Press-work, as before	10	0	0
Repairs, at the lowest	1	0	0
	41	0	0
Interest for six months	1	0	6
Interest of balance of £43 13*s.* 9*d.* for six months .	1	1	10
Cost of every 500 of second 4,000 .	43	2	4
			8
Cost of second 4,000 by stereotype .	344	18	8
Ditto, by the usual method, as before .	381	18	0
Balance in favour of stereotype on second 4,000 .	36	19	4
Deduct this from the balance remaining after the first 4,000	43	13	9
Balance against stereotype after 8 years . .	6	14	5

THIRD EDITION OF 4,000.

				£.	s.	d.
By the ordinary method, as before . . .				381	18	0
By stereotype—Paper . . .	£30	0	0			
Press-work	10	0	0			
Repairs, &c. now increased . .	1	10	0			
	41	10	0			
Interest for six months . . .	1	0	9			
Ditto, for balance of £6 14*s.* 5*d.* . .	0	3	4½			
	42	14	1½			

(Brought forward)	£42	14	1¼			
Multiply this eight times . . .			8			
Cost of third edition of 4,000 . .				341	12	10
Balance in favour of stereotype on third 4,000 . .				43	5	2
Deduct from this, balance remaining . . .				6	14	5
Balance in favour of stereotype at the end of 12 years .				33	10	9

"So that from this calculation (which I do not know to be incorrect) it appears, that it will not be till the tenth year that any profit can be derived from stereotype printing. And that after all charge shall cease on account of the original cost of the plates, the expense of each edition of 500 will be about £42 10*s.* or £340 for 4,000 copies, leaving a balance in favour of stereotype of £41 18*s.* on every 4,000 copies, or about 2½*d.* per book, which includes all advantages arising from any saving of capital. Since, therefore, no greater a saving than 2½*d.* per book is derivable from stereotype printing, it must be evident to every one, that Mr. Wilson's assertion, that a diminution of 25 or 40 per cent will arise in the price of books can never be realised.

"The above calculations are made upon a book printed on long-primer, as being a fair medium size; with smaller-sized type, the advantages in favour of stereotype will be greater; for when the composition and reading of a sheet amount to more than 40*s.* the expenses of plates will be defrayed by the second edition of 4,000.

"It has been stated that the advantage of stereotype arises principally from the saving of capital and interest; this will be rendered apparent by the following brief recapitulation of the preceding statement, discarding all calculations of interest.

				£.	*s.*	*d.*
Cost of 4,000 copies by ordinary printing . . .				343	7	6
Ditto by stereotype, first 500 . .	£121	5	0			
Seven subsequent do. at £40 .	280	0	0			
				401	5	0
Balance against stereotype at the end of 4 years .				57	17	6

SECOND EDITION OF 4,000.

	£.	*s.*	*d.*
By ordinary printing, as before	343	17	6
By stereotype, 8 editions of 500, at £41	328	0	0
Balance in favour of stereotype on second 4,000 .	15	7	6
Deduct this from former balance	57	17	6
Balance against stereotype at the end of 8 years .	42	10	0

"So that at the end of eight years there is still remaining against stereotype a balance of £42 10*s.* which will require about eleven years more

to clear; and each edition of 4,000, after the lapse of nineteen years, will leave a profit of £15 7*s.* 6*d.* only.

"Mr. Brightly enters into a similar calculation, to prove that on long numbers the stereotype system of printing is absolutely disadvantageous; but it is, I think, unnecessary to follow him, as it must be evident to every one, that where any thing extra is paid for press-work, such extra charge must, when the numbers are great, soon counterbalance any advantage arising from the saving of composition."

But it is still to be recollected that the plates will have become so much the worse as so many years wear, and accidents from having been put so often to press, will certainly have made them!—No inducement to purchasers by the sound or shape of "A New Edition," can be put forth. And if, by the device of a new title, the number of the edition be added at every successive impression, it will only be saying, as in human life when past its prime, so much the worse for wear!

Another drawback from the advantages of stereotype will result from the successful adoption of machinery for *type-printing*. The saving of cost in the working cannot be gained to the same extent upon plates as upon type, even if large impressions are worked, but which it is the principal object of stereotype to avoid. There is great disadvantage in *making-ready* plates, by the time consumed in fixing them upon the blocks or raisers in the first instance; next, by *underlaying;* then by want of the tympans to carry *overlays*, and a frisket, to prevent the high quadrats, flanches, claws, &c. at the extremities of the pages from appearing in print; and there is also more liability, from the concussion of the reciprocating movement of the machines, of the shifting of the plates; add to which, the plates, by the cylindrical pressure travelling over their surfaces, are very subject, if not fastened to the blocks or raisers in an extraordinarily secure manner, to warp and break, and then, as before-stated, the time taken for any repairs is so much more valuable when a machine is stopped, that is calculated to be going at the rate of two thousand impressions per hour (one thousand each side) than when at a press doing only one-eighth of that quantity, that although I have worked a great many, yet I doubt very much whether I shall ever attempt another plate at my machine.

For the purpose of showing, in a yet stronger light, that every edition of a stereotyped work must necessarily be, in a

course of years, much worse in appearance than would the same editions of the same work be, if done in the usual mode of printing, I am disposed to make some additions to the fourth answer. It has been well observed, that "the shape and manner of the first edition must be continued: no deviation as to plan or size can possibly take place; nor any advantage be reaped from the future improvements in the shape of types." Of how much importance this consideration must be, let any one, to form a judgment, compare the editions of a work printed in any respectable office, for ten years past, where the types are kept in a constant round of use, and wear, and replenishing; and it will, to a certainty, be found that each edition has had the advantage of progressive improvement in types. To give an example in my own practice, I will take the work I have before had occasion to mention, viz. Nelson's "Fasts and Festivals," going back to the year 1805, when it was printed by my predecessor, Mr. Rickaby. In 1807 it was put into my hands to reprint. The type (pica) it was before done in, was then found to have been, in the mean time, so much worn, that I was under the necessity of using one of some years later casting. In 1811 it was again reprinted; in those four years that fount had done its service, and the book gained a still more modern type. In 1814 and 1818, precisely the same circumstances again recurred. Thus, in five editions of the work in thirteen years, the routine of wear and tear gave the advantage of progressive improvement in type to each edition; and that not to a work requiring any particular display of elegance or good printing; and I may further add, and can *prove*, that, without any thing more than proper attention in the reading department, the correctness of the editions has been improving also. Now what would have been the case, if the work had been stereotyped in 1805? Instead of being put to press five times, it would probably have been so put thirteen times. Each movement of the plates and putting to press would have been attended with, at least, liability to accident; for every printer knows that the work of fixing the plates; the process of making-ready; working; taking-off; cleaning; and packing up again, must be attended with a great chance of batters; besides the mislaying or transposing a plate; wear, by frequent use of the lye-brush; and all the casualties which occur in a press-room. *The face of the type must have re-*

mained the same; errors could not, as in the ordinary mode of work, have been corrected, because the work would never have been read for that purpose; batters must have multiplied; and the work would have been gradually sinking, instead of rising in appearance to meet the improved state of modern printing. And suppose it were determined to re-stereotype from new type, the plates would not then, by weight, as metal, go one-fourth of the way to pay expenses, as would type. A strong confirmation, relative to what has been here stated, is afforded by the fact, that the University of Oxford, after its vast expenses, first, for the secret—next, for the foundry—and, lastly, but perhaps of greatest amount, for years of experience, have partially abandoned it, and have set up entire works in moveable types, in the persuasion, not only that the public would be supplied with better books as to typography, but that they would ultimately find an advantage to their own funds in recurring to the anti-stereotype plan—and, I am assured, from the best authority, that they are confirmed by experience in that opinion.

In the foregoing pages I have, like my predecessors, sought to combat the extravagant encomiums upon the universal, immaculate excellence and beauty of stereotype: yet, where those qualities are not indispensable, it will, nevertheless, be sometimes useful in a pecuniary point of view; and this, not only in works which are supposed never to be altered, but even in those which require, from their nature, frequent alterations. For instance, a work like The Picture of London—it is much more the interest of the bookseller to stereotype the work; print short numbers; and be at the expense of now and then a new plate to make requisite additions or corrections, than to lock up capital by printing, to save composition charges, a number equal to three or four years consumption of a work, which, from its nature, is deprived of a material portion of its interest, if it be not frequently published, "corrected to the present time." In logarithmic tables, the correctness of which is of the highest importance to the safety of navigation, and which once rendered, if possible, faultless, must remain FOR EVER the same; where the mass of figures may be called immense, and the composition, as tablework, in small type, is very expensive, stereotyping will be particularly valuable. In fact, for this very application, it is said,

the stereotyping art was revived in France by that eminent artist in our profession, Didot;* and I have lately been engaged in applying the same process to the same purpose.

In smaller matters, stereotyping may also be profitably employed. For instance, if large numbers are wanted of a single leaf of prospectus; the first setting-up being accomplished, it will be both a saving of time and expense to stereotype for the other seven pages, and work a forme of octavo. Wood engravings, applicable to more works than one, or forming ornaments for the trade, may thus be multiplied at small cost; but by a particular process unnecessary to be described in this treatise. In the case also of very expensive type, it will be better to have only sufficient for four or five pages, and stereotype, than to have enough for two or three half sheets, and to go on with the work in the ordinary mode.

* It appears from a note in Mr. Hodgson's Essay, p. 92, that it may very reasonably be doubted, whether Didot really did effect this work by casting of stereotype plates. "In the year 1795, Firman Didot published an edition of the *Tables des Logarithmes*, by Callet, which he announced as a stereotyped work. But it certainly was not a book of this description, at least, in the common acceptation of the term, it having been merely printed from pages of types which, after being corrected with the greatest care, were immediately rendered a solid mass, by the bottoms of the types being soldered together much in the same manner as was practised by Van der Mey, in Holland, about the beginning of the last century"—[see p. 818.] "It is also mentioned, as a matter of some magnitude, that Gatteaux formed a plate of Borda's Logarithms, containing *more than* 3,000 *figures*." I shall now begin to think that England has applied the art to this beneficial purpose to a far greater extent than either Didot or Gatteaux; and that I have the honour of being the artist by whose labours the assertion has been verified in the stereotyping of the Logarithmic and Trigonometric Tables to Kerigan's Nautical Astronomy, one plate of which contains more than 7,000 figures.

PROCESS OF STEREOTYPING.

SECTION III.

Minute detail of the art of Stereotyping—Form of the Type, Quadrats, and Spaces—Chases and previous preparation—Stanhope Manuscript, with Observations upon each head—Stereotype Imposing-furniture—The Gypsum—The Foundry; its Fittings up and Fixtures—The Moulding Process—The Oven for baking the Moulds—The Process of Casting—Various utensils required—The Picking Process—The Lathe for turning the backs of the Plates—Metal for Casting Plates.

"The first object of attention," says Mr. Brightly, "in this department, is the form of the type most convenient for casting plates. In new founts, the letter-founder should be directed to leave the body of the letter square from the foot to the shoulder; the leads and spaces corresponding in height with the shoulder of the letter; so that, when standing together in a page, the whole may form one solid mass, with no other cavities than what are formed by the face of the letter. The composition of which the moulds are to be made, when applied to such pages, having no interstices to enter, and being indented only by the face of the letter, may be easily separated: but if cavities be left in the page, the mould will unavoidably break, and injure the impression.

"The quadrats should be cast rather lower than the shoulder of the letter, about one-third of the depth of Pica. Otherwise the plate, which corresponds with the page, will be inconvenient to work at press: for where the whites are considerable, and the quadrats nearly the height of the letter, it is difficult to prevent the fouling of the paper. But if the quadrats be cast lower, this inconvenience will be avoided; and the cavities formed by these quadrats being large and shallow, there will be little difficulty in separating the moulds from the pages. If the composition break in those cavities, which sometimes happens, it is of little consequence, as it does not affect the face of the letter; and the metal may be afterwards reduced where it stands up too high. As the

thickness of the plate, however, must, in some measure, be regulated by the position of the quadrats, care should be taken not to have them sunk too low, or the plate, when cast, will have holes in the places where the quadrats stood.

"Each work should be provided with four, five, or six small chases, according to the nature of it, so as to lock a quarto page, or two octavos or smaller ones. Previous to its being delivered to the founder, the compositor's work must be carefully examined to see that every correction has been made; that it has been imposed with the brasses or leads on each side, to form the flanch of the plate by which it is to be fastened to the block or raiser; that it has a thick lead at head and foot to protect the head and signature lines; that it has been locked up perfectly square, and very tight; or the effect which is commonly termed suction, will occasion the mould to draw up even the whole page; that it has been accurately planed down, washed well with lye, and rinsed with clean water after the pulling of the last proof; and the moulder must take care that it be perfectly dry, as the least moisture will prevent the due effect of oiling, and the mould will certainly break; particularly if it touch any damp reglet or furniture."

I am now arrived at that part of my work at which the STANHOPE MANUSCRIPT will be introduced, with such observations of my own as may show any variation in practice which experience and convenience may have suggested since his lordship's time.

"*Stereotype Imposing Furniture.*—The stereotype imposing furniture for a page consists of an iron frame, an iron side-stick and foot-stick, an iron head, and two, three, or four iron quoins, with four bevelled brasses, to give a slope to the edges of the stereotype plate. Chases are made of different sizes and shapes, suited to folio, quarto, octavo, &c. But the thickness of all chases and furniture should be strictly conformable to a given height; for upon their truth in that respect depends the perfection of the thickness of a stereotype plate.

"It being taken for granted that types are, what they ought to be, all of the same height, my object, in constructing this new imposing furniture was, to obtain a uniform level around the page, without which, the stereotype plates must vary in respect to thickness, exactly to the degree of imperfection which belongs to the

furniture. It is, therefore, essential, in the first place, that the imposing chase and its apparatus be made correct in these respects; and, in the second place, that in the stereotype workman's hands, they be made to lie fairly upon the moulding table; for, though the furniture may be well made, yet, if there be any want of cleanness in this part of the operation, or such inattention as to allow any part of the furniture to stand higher up than its true level, an inequality in the thickness of the stereotype plate will take place from that cause.

"I adopted the use of metal furniture all round the page, in the persuasion that it was better calculated to preserve the page in its proper shape, than if wooden furniture were made use of."—*Stanhope Manuscript.*

OBSERVATION I.

I have preserved Lord Stanhope's description of his apparatus in this instance, as I shall in others, for the satisfaction of those who have already adopted, or may choose to be informed concerning his elaborate and expensive mode. The necessity of being more economical has simplified the stereotyping apparatus in this, as well as in many other parts. My foundry was erected upon the principle of having every thing as effective, but at as little expense, as possible; and after having given Lord Stanhope's (perhaps more perfect) mode, I shall submit that which I find practically good, and, withal, much less expensive.

Such very nice preparation of the furniture and chases is by no means necessary. Common cast-iron job-chases, and wood furniture, cut a little higher or thicker than ordinary, is all I find called for in this particular. But this is owing to an improvement and simplification of the moulding-frame, which will be hereafter described. Any variation in the thickness of the plates is corrected by the lathe, which must, at all events, be resorted to; as it will be impossible to meet with every plate of one uniform substance in the most expensive and best mode of casting. Bevelling off the side brasses or leads will also be wrong, as there would then be a difficulty in getting the chops of the chuck of the lathe to take good hold: and by a plane and block, of simple contrivance, the bevil is quickly made as the final process of preparing the plate.

"*The Gypsum.*—Gypsum, or plaster of Paris, the well-known

material of which statuaries form their figures, models, moulds, &c. serves for making moulds for the stereotype plates, when mixed up with water, in the manner detailed under the Section descriptive of the moulding process.

"It is necessary to attend to several circumstances, in order to have it in a good state for stereotyping. Previously to being burnt, in order to prepare it for making the moulds, it should be broken into pieces, none of which should exceed the size of a hen's egg. When broken, it is put into the upper oven, in pans which are supported at a distance of three inches from the bottom of the oven, in order that the pans may not be unequally heated by resting on the bottom; and, calculating from the time when the heat is capable of keeping tin in fusion, it will be found that three hours burning will prepare enough of gypsum for ten or a dozen moulds; if more gypsum is wanted to be prepared, a longer time for burning may be allowed, or an increased heat given to the oven; but to lengthen the time of burning is preferable, as thereby the gypsum is more equally prepared from the outer surface of its masses to their cores. Care should be taken neither to burn the gypsum too much, too little, nor unequally. If it receive too much burning, it will, when mixed with the usual proportion of water, look too thin, have a gritty appearance, and exceed the proper time which it should take in becoming firm enough to be detached from the types. If it be under-burnt, it will be found to set too rapidly, not affording time sufficient to dab the page, while thin enough for that purpose; and will be adhering so firmly to the shaking tool, at the time when it is to be cleaned, as scarcely to be detachable from it. It will also, in the under-burnt state, be very injurious to the dabbing brush, by clogging it with gypsum nearly to the points of the hair; and to cleanse it from clogged gypsum tends very much to tear it in pieces. Well-burnt gypsum possesses the characteristics of steering clear of both these extremes. It allows a very adequate time for shaking; has the appearance of fine thick cream when poured upon the types; allows good time for dabbing the page well; is still thin in the dabbing brush and shaking tool, when the workman, after dabbing, sets about cleaning them; and it is only when gypsum is in this well-burnt state, that reliance can be placed upon the moulds being secure against cracking when immersed in the metal-pit.

"If gypsum be burnt unequally, that may arise either from the pieces being too large, so that their outer surfaces may be quite done though their cores be very far from having received enough of heat; or though the pieces of gypsum be of a proper size, if too great heat be applied, by which the outer surface may be over-burnt, and the inner under-burnt. Gypsum, in this state, is not so easily detected at the time of moulding, for it then has very much the appearance of being well-burnt, probably, from the extremes counterbalancing each other; but it is mortifying to the workman to find, that when moulds, made of such gypsum, are immersed in the type-metal, they are almost invariably spoilt by cracking.

"After the gypsum is thus prepared by burning, it is to be pulverized very finely, and sifted through a sieve not having less than 40 meshes in an inch. For pulverizing the gypsum, I have contrived an apparatus, which acts in resemblance to the grinding of flour in a flour-mill. I inclose the sieve for sifting under a table, to prevent the fine particles from being lost by flying off, and also to keep every thing else near it free from being covered with it."—*Stanhope Manuscript.*

OBSERVATION II.

In the metropolis, where plaster of Paris can be had ready prepared, this direction for its manufacture will not be of much utility: but it contains, at the same time, so many excellent cautions, pointing out remedies in the course of process, that it cannot fail of being acceptable in every foundry. Three sorts of plaster are prepared by the statuaries: the second degree of fineness is that chiefly used for moulding from type. It must be kept perfectly dry, and free as possible from air. Even in this state it will often require to be baked in the oven before mixing.

The foundry will not require any great space or expense for casting the compositor's work of one office; but must, of course, be proportionate to the concern intended to be carried on. "A room sixteen or eighteen feet square will be sufficient to forward as many pages as can be set up by fifteen or twenty compositors; and it should be well ventilated to prevent the fumes of the metal from injuring the workmen." Thus, if circumstances admit of it, the melting-pits should be set in the space of a large chimney-open-

ing, with the flues ascending three or four feet up the chimney on each side, leaving a large vent in the centre, and by having a door or window on the opposite and each other side of the room, such a current of air may be gained over the melting-pit as will effectually carry away the noxious vapour and heat up the chimney, and leave the foundry as clear from either as any room in the printing-office. Such is the plan I have adopted, which will be clearly understood by the following sketch:—

A trough for speedily cooling the casting-pots and metal should be so placed as to be equally contiguous to the circuit of the crane and to the melting-pit. The other conveniences and apparatus necessary are as follow:—a moulding-table or bench, with pieces of perfectly level marble, or stone, or cast iron, with turned plane surfaces, about eighteen inches or two feet square, to contain three or four of the chases, in order to form the moulds from the pages—another common wood bench or table; with some shelves to lay plates, moulds, tools, &c. upon; which may be placed wherever the workman pleases. The material fixtures are, the melting-pit and its furnace; the oven and its furnace; and the crane; the pit being set so far projecting into the room as to allow of the tackle of the crane being suspended over its centre. If a second oven could be added, for heating the pots in which the mould is inclosed, before the immersion into the metal-pit, it would be a great convenience. The crane may be made of either wood or iron; but it must be so arranged as to swing over the centre of the pit, as well as of the cooling-trough.

These erections being completed, the stereotyping process commences with the moulding, which I shall describe from the Stanhope Manuscript.

"The work of the stereotype manufacturer begins at that part of the compositor's business when the pages are finally corrected, and made ready for press; at which stage, instead of [being imposed, read, and] going directly to press, in order to print off the number of copies wanted, the pages are delivered to the stereotype workman, who proceeds in the following manner:—

"1st. Not reposing implicitly upon the compositor for putting into his hands the pages in a state sufficiently clean and dry for stereotyping, the stereotype workman examines them in these re-

spects; as he is well aware that either of these causes would prevent the mould from being good; especially the circumstance of the types being wet or damp; for, in such cases, the purpose of oiling the types [as explained beneath, in the 3rd article of this section] would be defeated.

"2ndly. When the stereotyper has ascertained that the types of a page are clean and dry, he places the said page upon one of the moulding tables. Previously to laying a page down upon a moulding table, care is taken to have it clean, and completely free from any thing which might hinder the page from lying quite flat. Any small gritty particles, lying upon the moulding table, would push up the types they might happen to get under; and on that account, if a plate is cast from a mould taken from such a page, it must either be entirely rejected, or the letters which stand above the proper level of the page must be cut out, and the plate repaired in the manner detailed beneath, under the head "Repairing and Altering Plates." If, on the other hand, there be any thing on the moulding table to prevent the imposing chase and its furniture from lying flat, one of the following bad effects might take place, viz. 1st, supposing the page to be planed over, and forced a little lower than any part of the chase or furniture, then the plate cast from a mould taken in such case, would be of unequal thickness; 2ndly, supposing the chase, its furniture, and the types, to be relatively correct, yet, if there be any vacancy between them and the moulding table, some particular types might be pushed down by the operation of dabbing, and, consequently, being low in the plate, would either render that plate useless, or require it to be repaired in the way just alluded to.

"3rdly. Oiling the types is absolutely necessary; for, unless this be done, the gypsum will adhere very firmly to them; the mould will break in attempting to detach it from the types; the types will be filled up with the gypsum; it will be found exceedingly difficult to clean them; and, in cleaning, they will run great risk of injury. The application of the oil is a security against all this mischief; and, at the same time, it is laid on in so small a quantity as not to prevent, in any sensible degree, the mould receiving the perfect form of the types. The oiling of the types being resorted to for no other purpose than preventing the adhesion of the gypsum, the thinner it is applied, the better; and,

with this view, sweet oil, or drippings of sweet oil, mixed with an equal quantity of spirits of turpentine, to render it very fluid, has been found most perfect and convenient for use. The brushes used for applying the oil to the types, are of that sort which painters call sash brushes; but large ones, and which are ground at the points, are picked out; they are chosen large, that they may oil the types quickly and thoroughly; and the grinding imparts to them these double properties; 1st, softness, whereby little or no injury is caused to the types in the operation of oiling; 2ndly, fineness to the points of the bristles, by which fine points the oil is applied to the minutest hollows of the types. Very little oil should be used; it is only necessary to take care that no part of the page is omitted to be oiled. Besides drawing the brush along and across the page, it should, for further certainty, be dabbed both perpendicularly and in a sloping direction. Observe that the oil and brushes just spoken of are for the types only; and that other oil, and other brushes, are made use of for the moulding-frames, as follows:

"When the types are oiled, the brush that was used for that purpose is hung up over the vessel which contains the oil.

"4thly. The lower and upper moulding-frames. The lower one is cut flat, both on the upper and under side, and is gauged throughout to an equal thickness. It has two steady pins, one at each end, which fit into the ears at the ends of the imposing chase, and serve as guides to raise the mould without any irregular motion. The separation of the mould from the types is effected by gently turning, alternately, each of the three screws, which are buried within the thickness of the frame, when it is lying upon the chase, and has the upper frame upon it. These screws have no heads, their threads being cut their whole length—there is a notch in each for the screw-driver to turn them; they have each a small round hole in the centre; and the screw-driver has a corresponding point, to keep it from rubbing against, and thereby injuring the screw threads which are in the frame. The lower moulding-frame determines the thickness, the length, and the breadth of the mould, as the mould is actually formed within it. The sides of the moulding-frame slope inwards, at an angle of degrees; and consequently, when the frame is raised by the turning of the three screws, the mould is lifted from the page at the same

time. The upper moulding-frame is only cut flat on one side, to make it lie close upon the lower one. The dimensions of the upper frame are the same as the lower, and its sides are also formed to the like angle of degrees; but its slope is outward, as the widest side of its opening is put to correspond with the widest side of the opening of the lower frame. The upper frame is only made use of to avoid the scattering and loss of gypsum by dabbing, and is therefore removed as soon as the gypsum acquires such a consistency as to enable the workman to proceed to the smoothing of the back of the mould. The moulding-frames are oiled with drippings of sweet oil, without any mixture of turpentine, and the oil is applied upon them with a hard unground sash-brush. As it is of considerable consequence that the mould should fall easily out of the moulding-frame, its inner sides should be particularly well oiled; this is not so essentially necessary upon other parts of it."—*Stanhope Manuscript.*

OBSERVATION III.

I have before alluded to an alteration in the moulding-frame which varies it from the foregoing description. That which I have adopted is shewn in the engraving. It must be somewhat larger than the pages it is to be used for, so as to admit about a quarter of an inch margin of mould all round. It is of cast-iron (a pattern in wood, must, of course, be first made to cast from) about three-quarters of an inch square, bevelled on the inside, and having circular projections at each corner, drilled and tapped to receive screw-pins to serve as feet. As this frame determines, not only the strength of the mould, but the substance and regular thickness of the plate to be cast; it is of the utmost importance that the greatest accuracy should be observed in its construction. To effect this, I have mine turned on both sides by the same machinery which is used for turning entire surfaces of cast-iron. The legs, as said before, screw into the circular projections at the corners. They have each a groove to receive the turn-screw. Upon the right management of these legs depends every thing most important in this part of the stereotyping progress. First, they must be turned and set so that the frame will stand perfectly parallel with the moulding-table, at any given distance. Secondly, that distance must be so arranged as to give, in the result, the

chosen degree of thickness to the plates, which is regulated by this means alone—the higher the frame is elevated, by turning the screw legs out, the thinner will be the plate—the lower it is dropped, by screwing the legs further in, the thicker the plate.

But even this nicety of apparatus may be dispensed with if the wood furniture be made of such a thickness that the moulding-frame, when lying upon the furniture, will give the proper thickness for the mould and plate. In this case no screws, or legs, or turning are necessary. If the wood pattern be truly made, and the iron-casting be flat and perfect, every requisite is acquired. I, at first, went to the expense necessary for the arrangement above described, but have, for some time, wholly laid aside the legs and screws.

"5thly. Concerning the quantities and the proportions of gypsum and water, which are mixed up for moulding, it is proper to observe that these should be as uniformly the same as possible; for, though deviations may not seem at first to be of any material import, because the gypsum sets sufficiently firm with different proportions of water; yet, as it is found, that on account of such differences, there arise variations in the dimensions of the stereotype-plates, this cannot but be viewed as a cogent reason for circumspection. One object with printers who devote their attention to the execution of fine printing is, to have the lines of one page fall immediately on the back of the lines of the other page. Without stopping to ascertain whether this is requisite or not, it may just be remarked, that the stereotype art interposes no obstacle to the attainment of this object, when care is taken to mix up the gypsum and water uniformly in the same proportions. As the best burnt gypsum mixes up most conveniently in the proportion of seven parts of water to nine parts of gypsum, copper cups are made for measuring these proportions, formed upon that calculation. Thus, say that the cup for measuring the gypsum is made to contain nine gills; then the cup for measuring the water is made to contain seven gills. Now, each of these cups being subdivided by distinct marks, into halves, quarters, and eighths, the proportion is preserved in any quantity which is going to be mixed, either by filling each cup, or measuring, by each, at the half, the quarter, or any given number of eighths.

"6thly. The shaking tool now comes to be used. According to the degree of burning which the gypsum has received, the shaking will require to be continued a shorter or a longer space of time; if underburnt, it will allow too little time for shaking and for dabbing; if overburnt, the mixture will look thin; assume a gritty appearance, and will take a long time to set. But when, avoiding these two extremes, the gypsum has received the proper degree of burning, the shaking of the gypsum and water may be continued half a minute, and yet sufficient time will afterwards remain for dabbing before it sets. The shaking is performed quickly, the left hand being under the shaking tool, and the right hand upon its cover; and, with a view to effect the perfect mixture of the gypsum and water, the regularity of current in the shaking tool is interrupted by a few momentary stops in the course of shaking."—*Stanhope Manuscript.*

OBSERVATION IV.

"The shaking tool" is not an expression quite to my mind. The "mixing-pot" would be more appropriate. Mine is made of copper, with a lid to sink inside instead of going outside of the pot. The copper-smiths call it a salve-pot.

The dabbing brushes I have made in the manner of the patent penetrating hair brushes.

"7thly. The gypsum is not poured all at once upon the page; but, at first, only as much of it as will cover the page very thinly. This is done with a double view, both of much consequence; first, the air confined in the hollow parts of the types, which, if not expelled by dabbing, would occasion dots in the stereotype plate, has a more free passage through the thin body of gypsum, than it would have, if the whole of the gypsum were poured on at once; and, secondly, the gypsum is not so much scattered about as it would be, if the dabbing were to take place through the whole body of the gypsum that is to form the mould.

"8thly. Dabbing is adopted solely for the purpose of extricating the confined air; the brush is held perpendicularly, so as to touch with the whole of it at once; and the dabbing is continued as long as the thin state of the gypsum will allow. The hair of the dabbing brush is only about three eighths of an inch long, made

thus short, to give the hairs sufficient strength to reach into the fine hollows and divisions between the types.

"9thly. As soon as the workman has finished the dabbing, and poured upon the page the gypsum which he had left in the shaking tool, he must clean out the gypsum adhering to the inside of the shaking tool, by putting clean water into it two or three different times, and agitating it violently. The dabbing brush must also be immediately attended to, else the gypsum would set in so firm a body between the hair, as greatly to injure the brush, if cleaned in that state. The dabbing brush is cleaned by rubbing it with the hand, either when immersed in water, or when held under water running from a cock.

"10thly. The pallet knife is a very useful tool; it serves to collect any loose gypsum, and to return it for use to the back of the mould; it serves to give a general level to the back of the mould, when the gypsum lies thicker on some places than on others; and it likewise serves to clean the imposing chase and moulding-frames from any adhering gypsum and oil, after they have been used.

"11thly. *The straight edge.*—By means of this tool, a flat back is given to the gypsum mould. Its flat edge is made a little hollow, and serves to give a preparatory flatness to the back, leaving it a little too high, that a thin body of gypsum may be cut off by the knife-edge of the tool, when the gypsum is well set, and cuts firmly. If the cutting-edge of this tool be not kept truly straight, a different thickness in different parts of the same plate might be the consequence; for instance, suppose the back of the mould to be cut hollow towards the middle, then the stereotype-plate would prove thickest in that place; because the pressure of the metal is such as to force the back of the mould strongly against the cover of the casting-pot, and the mould will bend somewhat to this pressure, or break.

"12thly. In adverting to the time necessary for the setting of the gypsum, it is to be observed, that unless the proper degree of burning, which the gypsum requires, be scrupulously bestowed, the time of setting will vary; but if the gypsum has been properly burnt, it will be found to have acquired great firmness, and may be detached from the types, at ten minutes after the gypsum and

water have been mixed together. A good way of examining the firmness of the gypsum, is to put the point of the pallet knife a little way into the mould, and observe the resistance it makes to the spring of the knife. This method will always be found a sure guide, and probably the best, for the workman to proceed to.

"13thly. The raising or separating the mould from the page is accomplished in a neat and correct manner, by means of two steady pins at the end of the moulding-frame, fitting into the ears of the imposing chase, and of three screws, which are sunk within the thickness of the moulding-frame. The screws are turned alternately; and, at first, neither of them is turned more than one eighth part of a round, increasing by degrees, so as to raise the mould perpendicularly, and separate the whole surface of it from the types at the same time. The beauty and perfection of a plate are much promoted by carefully raising the mould from the types; as this care prevents the gypsum from breaking in the quadrat lines, or between rule lines; and, generally speaking, in the fine interstices between the types, where the mould, from being fine, is consequently weak. A good workman, who oils the pages well, and carefully raises the mould, will have very little disfiguring of plates from the breaking in of the gypsum."—*Stanhope Manuscript.*

OBSERVATION V.

This mode of raising the mould is found too slow and complicated. It also depends upon the peculiar correspondence of the moulding-frame with the chases and furniture already proposed to be dispensed with in Observation I. The mode now adopted in this operation is the application of two levers, as chisels, or irons with claws, which the workman uses by resting the ends upon the chase, and elevating the centre against the edge of the frame, which he, at the same time, keeps steady, to move the mould as directly upwards as possible, with the finger and thumb of each hand. This raising of the mould certainly requires much care and dexterity, which, if not nicely performed, will occasion parts of the composition to be left on the face of the letter.

The furniture, also, must be so contrived that the legs of the frame may rest upon the table, either outside or inside the chase, with the centre of the page as near the centre of the frame as it can conveniently be brought.

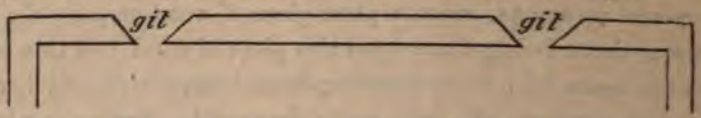
"14thly. The mould being raised from the page, the workman places the moulding-frame, with the mould in it, and the face of the mould upwards, upon a plane piece of wood prepared for the purpose, there being fixed upon this piece of wood two thin slips of metal, upon which the moulding-frame is supported, and thereby leaving a vacancy all along under the mould. Having so placed the moulding-frame, the workman puts one hand upon it to hold it steady, and gives one, two, or more smart blows with a mallet under the projecting ear of the frame, which blows cause the mould to fall out of the frame upon the flat piece of wood. As the oiling of the moulding-frame is on purpose to prevent the gypsum from adhering firmly to it, if the oiling be imperfectly performed, there is great risk of the mould being broken, or at least partially cracked, by adhering more in some places than in others, and by too many blows of the mallet being required to detach it from the moulding frame."—*Stanhope Manuscript.*

OBSERVATION VI.

There is no occasion for these preparations of wood and metal upon which to lay the frame to knock out the mould. The workman will turn the frame on his hand, resting it, perhaps, against his breast, and will detach the mould with two or three blows of his hammer, receiving it upon his left hand; then laying down his hammer, he will take the frame in his right hand, and having disposed of that, he has both hands at liberty to manage his mould.

"15thly. The mould now only requires a little degree of dressing, to make it fit for being put into the oven to be dried, and afterwards cast. This dressing is confined solely to the removing of any high parts of gypsum upon the edges which surround the face of the mould, and which high parts can only arise from a want of truth in the imposing furniture, or from an injury which it may have received. These high places are cut off by the pallet knife, the workman taking care not to cut away any gypsum from the outer part of the edges, which part of the mould, from the nature of the furniture, must always be correctly taken. If furniture has been used, which does not of itself form gits to the

mould, for the admission of the metal, the workman may easily cut gits* at each end, with the pallet knife, of this shape."



"16thly. The mould being now completed, it may either be immediately put into the oven, or laid aside till wanted for that purpose. If it be laid aside, the precaution of placing it upon a flat surface is necessary, to avoid any warping of the moulds. I have used a thick marble slab, made truly flat; and the moulds, as taken, are piled upon each other, with their faces downward to prevent their getting dust, or any thing else which might prove injurious to their faces."—*Stanhope Manuscript.*

OBSERVATION VII.

The Oven for baking the Moulds.—It is much to be regretted that the Stanhope Manuscript has left this article in a very defective state. It contains bare references to the laboratory at Chevening, and to drawings which his lordship intended to have made of this as well as of every other part of the apparatus: but as the references would have been totally useless without the drawings to which they apply, I have therefore omitted them. Neither the size, nor shape proper for the oven is prescribed. If made on purpose, perhaps two feet long, eighteen inches high, and thirteen inches deep, would answer every common routine of work for the foundry so far described. It may be divided by two shelves into three compartments—the undermost about four-and-a-half inches, for heating the casting-pots previous to immersion—the middle one eight inches, for quarto-sized moulds—the upper one five-and-half inches, for smaller work, Drying-racks must also be provided, similar to toast-racks, made of stout wire to hold the moulds upright in the oven.

"The number of moulds to be put in at once must, of course, be regulated according to the total number to be cast within a given time. Six or eight will get dry enough for casting by an hour's heating; and it is convenient that the moulds

* This should be "*geat*, the hole through which the metal runs into the mould."—See Moxon, p. 53.

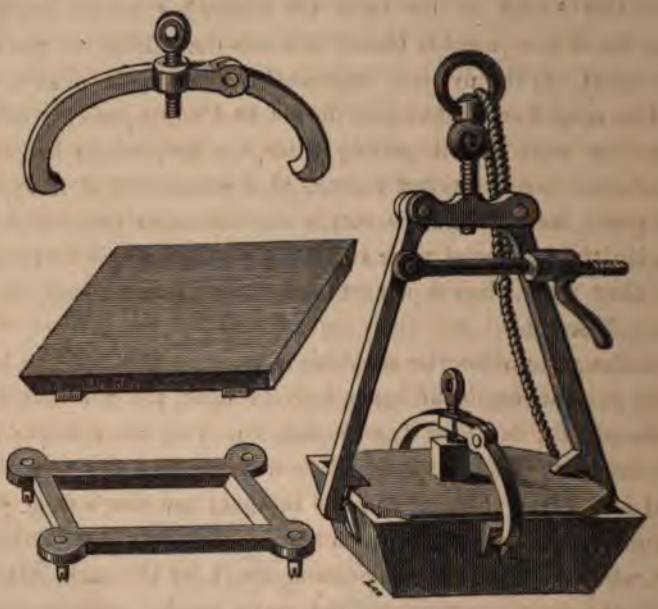
nearest the sides of the oven are somewhat sooner ready for casting than the moulds placed towards the middle of the rack. As the heat of the ovens is regulated by keeping it so as to melt tin in the upper one, that must be referred to frequently, on purpose to be safe in not getting these too hot, which should be avoided, for this additional reason, that moulds bend if exposed to too great heat. The stereotype workman may soon be able to know, by the colour of the moulds, when they are fit for casting; for, at that time, their type surface puts on the brown appearance of toasted bread.

"At the time when the moulds are put into the oven, it is the stereotype workman's business, also, to light the fire under the type metal pit, in order that the metal may be in its proper state for casting, as soon as the moulds are sufficiently dry, which, as we have observed before, will be in about an hour's time. The metal must be brought to such a heat as to light a piece of brown paper when held in it, and, consequently, kept at this heat during the whole time of casting. If the metal be not sufficiently hot, the plates cast in it will be deficient in that sharpness wherein consists the principal beauty of a stereotype plate; attention to the fires, therefore, both of the ovens and of the metal-pit is at this time very requisite."—*Stanhope Manuscript.*

OBSERVATION VIII.

The Process of Casting now commences, the chief apparatus for which is—first, the casting-pot to contain the mould; secondly, its floating plate; thirdly, its cover; also the nippers; a contrivance to fasten down the cover by a screw, which can be so fixed as not to be immersed along with the box into the fluid metal, and which may be easily disengaged for succeeding boxes, while the first are gradually cooling; and, fourthly, a pair of hooks, or shackles, or a rack and pinion to be attached to the crane, which may be quickly fixed or unfixed without the workman being in danger of burning his hands.

The casting-pot must be of a size proportioned to the plates which are to be cast in it; for, if it be large enough, although no exact fit is necessary, yet much excess of size will be attended with inconvenience. Its shape is clearly shown in the engraving. It is required to be of cast-iron, and to be made with four ears, or



hollow square projections—two for the nippers, and two for the shackles. The cover is cast, also, with a rabbet to fit, but cut off at the four angles to admit the metal; and having a projecting piece in the centre, upon which acts the screw of the nippers. The floating plate, also of cast-iron, fits to the bottom of the pot. The nippers are distinctly shown at the top of the engraving. They have a hook or claw at each extremity to fit into the ear of the box; and a strong screw in the middle, with an eye at top, which, when put to use, is screwed on to the projecting top-piece of the lid, and has a hinge on one side, allowing it to be opened for being fixed, and for adapting it to various-sized pots. These two articles, last described, are separately shown over the moulding-frame. The face of the floating plate, and inside face of the lid, are turned with the greatest possible accuracy; for upon these depends the approach towards a true level of the back of the stereotype plate, as well as its equal thickness. The crane and shackles are for the purpose of swinging by a perfectly horizontal motion the casting-pot and mould into the liquid metal. The shackles are plainly shown in the drawing as fixed to operate. At the extremity of each arm is a kind of finger and thumb projection; the finger catching into the ear of the pot, while the thumb

catches on the lid. A turn of the nut-handle upon the transverse bolt, near the top, fixes them in an instant; and the whole, as represented, is ready for immersion into the metal-pit. The mould having been previously placed in the pot face downwards on the floating plate, the whole is then suspended by the crane, which turns over the metal-pit, and lowered very gradually into the liquid, and there kept steady by the contrivance of a lever and weight resting upon the top of the shackle, or the same purpose may be effected by a rack and pinion fixed to the crane. The metal will then enter the box at the corners of the lid, causing a bubbling noise by the expulsion of the air, and by its gravity insinuating itself beneath the floating plate, which, being specifically lighter than type metal, the buoyant powers of the latter cause the plate and mould to float, so that the back of the mould is pressed against the lid of the pot, and the ledges of the gypsum mould are brought in contact with the floating plate, the metal, at the same time, insinuating itself by the geats into the part of the mould containing the type *en creux;* nothing remaining between the face of the floating plate and the inner face of the lid but the mould and the stereotyped plate. When the bubbling noise, above-mentioned, ceases, the pot is supposed to be completely filled; and if the metal has been at a proper degree of heat, which should be tried by the test before-mentioned, it will be ready to be taken out. Having remained immersed from six to ten minutes, it is drawn out by the crane with great care and steadiness, and swung carefully to the cooling-trough, into which it is gently lowered, and rested upon a stone or brick, or wet sand, so as to just touch the water, in order that the metal under the floating plate, at the bottom of the pot, may first begin cooling. The cooling is a most essential part of the process. Lord Stanhope, and with great reason, considered that it demanded the most minute attention; yet, in present practice, the shape of the casting-pot is much simplified from that which he recommends.

"The shape of the pot itself, having both ends considerably enlarged, is prescribed by what is found to take place in this method of casting; for it is essential, that as the metal shrinks in cooling, a provision be made to afford a supply thereof uniformly;

which is accomplished, by causing the stereotype plate to begin to set in the middle, and proceed progressively to each end. Heads of metal are therefore provided at each end for this purpose; and to be certain of having the metal longest in a fluid state, exactly opposite to the gits by which it flows into the mould, the pot is besides made to descend at the ends, thereby forming a sort of feet, and by the mass of metal securing a delay in the cooling of each end. In co-operation, and to attain perfect effect in this principle, the cover of the casting-pot is made hollow, so that the middle of it is an inch and a quarter lower than its ends; and it is only three sixteenths of an inch thick in substance over the back of the mould. This is truly a grand principle in the stereotype art, which ought, in no case, to be departed from; and which imperiously prescribes to the pot and its cover the shapes I have given them."—*Stanhope Manuscript.*

OBSERVATION IX.

In casting small plates, which are usually cast by two at a time, this precaution of the hollow lid is not necessary; but for large octavos and quartos it cannot be dispensed with. In the act of cooling, the metal will contract, and for the first two or three minutes very rapidly. To supply for this effect, the workman will, perhaps, five or six times, take some metal in a ladle kept for the purpose, which he will pour in at the angles of the pot till he finds it set, and not capable of admitting more. The nature of the process is this—the metal having become expanded beyond its natural capacity by the application of powerful heat, contracts again as it cools, or recovers its natural temperature. It will have a tendency to cool first in those parts which are most exposed to the air, and which are consequently the corners of the plates; or, in those parts where the lid is of least substance to retain the heat. Hence, if the lid be thickest at the centre, it retains its heat there longer than at the thinner extremities; and the metal is thus kept fluid in the centre after it is set at the corners: consequently, the contraction, which would take place there last of all, could not be counteracted by the filling in at the corners, and the middle part of the plate must, in such case, remain defective. To remedy this, the hollow, recommended by Lord Stanhope, is absolutely necessary. Accordingly, I have the lids of my quarto pots cast

or turned hollow like a saucer, till, at the very centre, not more than a quarter of an inch in thickness is left; across which hollow I lay a bar of iron, upon which the point of the nippers rests. The engraving will make this perfectly clear. The hollow, when drawn out of the melting-pit, will contain some metal, which must be cleared off with a knife or any simple implement, and replaced by wet sand. This hollow in the lid I find completely reverses the process of cooling above described, so that I have no plates defective in the centres. Even if more rapidity of cooling be necessary, I obtain it by laying a little wet sand or gypsum in the hollow, which may also be done, if thought necessary, round the projecting part of the smaller lids.

The cooling-trough may be shortly described, although it must be evident that no determinate shape is necessary. It should, however, be sufficient in length to hold two or three pots—of depth sufficient to contain water enough to cool the pots, without the water becoming too hot. A long stone, about as wide as the bottom of the pots, should be elevated by bricks, so as to be within three inches of the top of the trough. The water must be barely level with the stone; and must be kept to that height, as it exhausts by evaporation, by a supply from the cistern.

The shackle having been disengaged and applied to another box, which had been in the mean time prepared with another mould, by the time the second or third box is in the trough, the nippers of the first may also be disengaged.

"If casting-pots are to be used a second or third time on the same day, the plates should be taken out of such pots, without waiting till they are very cold, as, by retaining some of their heat, they will be the sooner hot enough for next time of casting. To get the plate out, the nippers are first disengaged, and then the cover taken off; after which, the bottom of the pot is turned

upwards, upon a very strong table [or block], above which it is lifted about 8 or 10 inches, and let fall from this height, and by repeating this several times, the mass contained in it is separated from the pot. The four corners of the type metal are then knocked off with a hammer, and the metal which surrounds the sides of the mould is forced away, after which separation, the mould, plate, and floating plate are easily got at. The floating plate is returned into the pot, its cover is put on, and it is again placed in the oven to heat; what gypsum can be readily detached from the stereotype plate, is taken away from it, and the plate is put into the water-trough to soften the remaining gypsum that it may be easily brushed off. The bristles of the brush used for this purpose should be no stronger than what is necessary to reach well to the depth of the beard of the letters; and the brushing should be effected with the plate either under water or held under a running cock; for an abundant supply of water contributes greatly to the plate being quickly and well cleaned.

"The operation of stereotyping is now completed; and when, by a proof of the stereotype plate, it is found to be faultless, the types of such page are returned to the compositor for distribution and further use."—*Stanhope Manuscript*

OBSERVATION X.

It will now be clearly understood, that upon, first, the truly plane surface of the floating plate; secondly, the equal thickness of the mould, by the accuracy of the moulding-frame; thirdly, the perfectly plane surface of the inside of the lid; fourthly, the perfect pressure of the nippers and shackles; and fifthly, the steadiness of the motion of the crane and pullies, will depend the degree of accuracy, and even substance, of the stereotype plate. The whole apparatus must float both in the air and the metal, and be rested in the trough perfectly parallel and horizontal. The mass of metal which has accumulated under, and will be attached to the floating plate, may be disengaged by a smart blow with a mallet. It will be proper to reserve this superfluous metal for the next melting, as throwing it immediately into the pit will cool the mass.

Notwithstanding the utmost care, and every possible success, still the plate will be found imperfect in a greater or lesser degree by dirt, or dross, or small globules of metal getting into the eye of

the a, e, &c. it is, therefore, now turned over to *the picker*, who must possess the sharp eye and fine tools of an engraver to do his business effectually. Such minute, but serious, defects may be thus easily removed, as well as larger impurities occasioned by the mould not having been perfectly discharged out of the white-lines, space-lines, quadrats, or other lower parts. Some trimming will also be necessary, by means of planes, adapted to the purpose, about the ends and sides of the plate, particularly bevelling the flanch by means of which the plate is attached with brass slips or claws, or screws, or some similar contrivance, to the block which raises it to the height of type. Faulty, or wrong, letters or words can be repaired by punching out the part, and squaring with proper files so as to admit the letters to be inserted, which being brought to a level with the face of the plate, and the stem cut off to a level with the back of the plate, with a little solder and a hot iron, they may be secured and made as firm as the other parts of the plate. In some cases it may even be requisite to cut off a portion of the plate, and to substitute another part, which, having been previously cast, is joined on to the other by the soldering process. It has also been found a matter of great uncertainty, whether the plates, even with the most perfect apparatus, are all cast of equal thickness, and, consequently, a complete foundry must be provided with machinery for turning and dressing the backs of the plates. This is generally effected by a turning lathe, having an accurately turned chuck-plate fixed to the mandrel, with universal chucks or chops to embrace the plate, and a slide-tool, with carriage and cutter so accurately adjusted, that when the lathe is put in motion by the foot, the turning the handle of the slide-tool may cause the cutter to traverse longitudinally from the circumference to the centre of the chuck and back again, till, by the revolution of the plate upon the mandrel, against the point of the cutting-tool, a perfectly level and true surface is obtained in concentric circles upon the back of the stereotype plate. An apparatus of this sort will cost from fifty to one hundred guineas.

Many other tools will be found either necessary or convenient, concerning which, nothing but experience and circumstances can lay down rules; for instance, files, chisels, accurate straight-edges, lathe with circular saw, fine punches, piercers, a small

press for proving the plates; tubs for the dross, waste plaster, &c. brushes; cloths with which to handle the hot boxes, metal, plates, &c. to enumerate and describe which would be an endless trouble; and to purchase them for the use of the foundry alone, no inconsiderable expense.

Making the metal.—The metal used for casting stereotype plates is as various in its mixture as the judgment and views of the operator. The considerations, however, by which he must be guided are these: If it be too hard the plates will be more liable to damage by the failure of delicate strokes in the face of the letters, which cannot be so easily rectified as where such defects happen to fusil types. If, on the contrary, it be too soft, the want of durability is a self-apparent consequence. Type metal is, in general, for the reason just stated, too hard; if used, it must, therefore, be lowered. But it is not to the interest of a printer to use type-metal, that is, old type, since in exchange for new type he will obtain a far greater value for it than it will cost him to prepare his own metal. If the metal is purposely compounded from the simple ingredients, one founder gives the proportions (but which do not appear very *precisely* defined) of from five to eight parts of lead to one of regulus, and one-fiftieth of block-tin. If genuine regulus, or unmixed with lead, can be obtained (but which is hard to be done), 1 cwt. regulus to 6 cwt. lead; or, in fractional numbers, $\frac{1}{7}$ regulus, and $\frac{6}{7}$ lead, will make a metal of excellent quality. I have paid five guineas per cwt. for regulus. The lead most preferable for this purpose is that usually denominated Tea-lead; or that which comes from China as the lining of tea-chests. This varies in price according to the market price of ordinary lead. I have given from 18*s*. to 24*s*. per cwt. This lead is very pure in itself, and is also enriched by a considerable quantity of very fine solder used for the numerous joinings. This must be first melted down and carefully skimmed of all ashes arising from the paper and dross, which will rise sufficiently to purify it by bringing the mass to a light crimson heat. Let it then be run into pigs, for which purpose I use casting-pots; and weighing each pig carefully, mark its weight, and put it into store till the metal is to be made.

The *making the metal* is a process requiring much attention and labour. The regulus, to assist its more ready fusion in the pre-

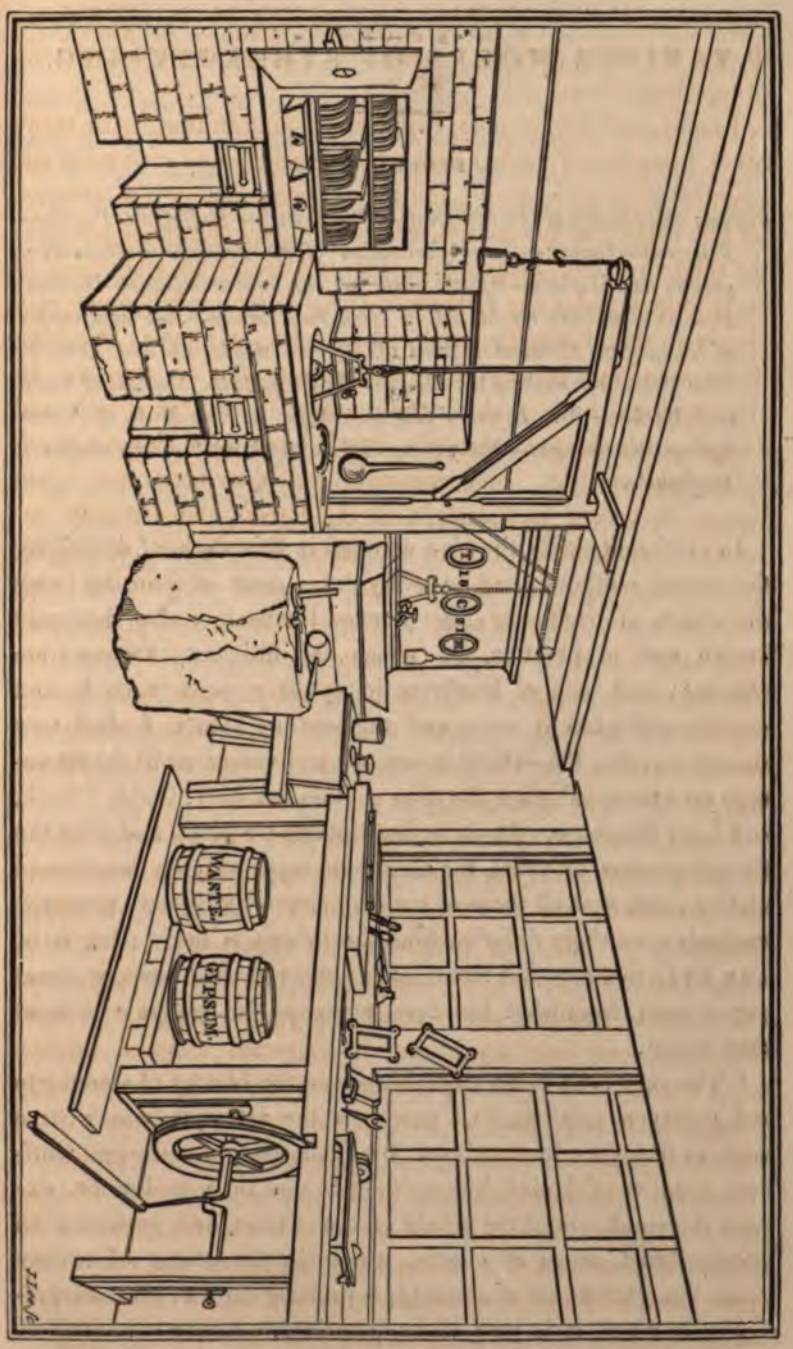
viously fused lead, must be first broken into very small pieces. A smart blow with a hammer while lying in the hand or on the floor will separate it readily the way of the grain. The metal while in the state of fusion must be constantly attended to, and stirred until the regulus and lead become intimately blended. The dross will require to be cleared off by throwing on small portions of oil or grease after the grosser parts have been skimmed off. Even these skimmings and ashes will contain considerable quantities of metal, and must, therefore, be laid aside for subsequent refining. The metal may then either be left in the pit to be re-melted for dipping, or run into pigs for store. Repeated fusion impoverishes the metal, so that if much residue be left in the pit after a day's casting, or if plates are melted down to be again cast into plates, the metal must be restored by an addition of new metal or of regulus. By way of assay either when making the new metal, or at any other time when you wish to ascertain its quality, you may run a ladle full into a mould roughly made of clay, or gypsum, or any other convenient substance, or even on a flat stone, so as to let it be of a moderate thickness; and letting it get cold, break it by a smart blow against the edge of the moulding-stone or table; if it breaks sharp, without bending, and shows a face perfectly uniform, and but the first degree towards sparkling, it will be good metal; if it appears too sharp, having your pigs of soft lead in store, the remedy is at hand. It is impossible by description alone to make any one acquainted with the precise hue necessary to be acquired; but the darker it is, the less rich is the metal.

It will readily occur to any one that the processes just described must be the most disagreeable and injurious to the workman, of any part of his business in the foundry. The running down of the tea-lead is particularly offensive; and the final mixture of the regulus the most injurious to his health. But this may be entirely avoided by judiciously planning the foundry: namely, by securing a draught of air from the other sides of the room to a flue nearly over the melting-pit, by which means the entire effluvia are forced *from* the workman to escape into the funnel of the chimney, and thence into the open air. In my little experimental foundry, a representation of which is here given, I have so well succeeded by leaving a portion of the large chimney between the smaller flues of the two furnaces, just at the back of the pit, open, with a window opening at each side, as to keep the place always wholesome,

pleasant and cool. In fact, any one may be in my foundry during the worst parts of the process, without any inconvenience or injurious effects.

I must, however, confess, that I have found in this, as in many other branches of trade, that where considerable discretion and practical skill are requisite, and where a manufactory is established for one particular business, it is far better, and cheaper to purchase the relative articles ready made, than to attempt the embracing of every branch under one concern. This observation will apply very closely to that of smelting and compounding of metals; requiring furnaces and apparatus of far greater power than are requisite for stereotyping; besides that, the process, from the stench and danger of fire, ought never to be carried on in the midst of a populous neighbourhood. I am, moreover, well convinced, and again repeat, that even independent of the latter, and certainly important consideration, I have the metal ready made, to any required strength, much cheaper than it would cost me by being made at home. Mr. Mason, of Cornwall-road, Surry, has paid great attention to this branch of manufacture; and I have from him the metal, in pigs, ready for the foundry, made from foreign regulus and tea-lead, at about 40*s*. per cwt.; and my dross and sweepings refined for 14*s*. per cwt. on the product, which could not very well be done in a foundry at any expense.

It may be necessary here to observe, that I by no means intend to assume that either the foundry or the apparatus, as here shown and described, are in exact conformity with other stereotype foundries; or have any pretensions to superiority. But it is, altogether, what I find effectual for the intended purpose; and calculated to produce plates equal to any, and superior to most that have come into my hands. I converted a spare kitchen into a foundry, chiefly for experiment, and that I might be perfectly competent to say, that no part of this work has been written without a practical knowledge of every branch of the profession treated of. I had some standing work by me which I could practise upon, although with every inconvenience of low spaces, quadrats and leads. If I succeeded I might keep the plates and release my type: and if I found it agreeable to pursue the art still further, I might make my foundry a permanent addition to my business, and undertake work in this branch, for my own connexions, rather than let it go elsewhere.


WASTE
GYPSUM

VARIOUS MODES OF STEREOTYPING.

SECTION IV.

Various other modes of Stereotyping—The French—Hoffman's Process—Pingeron—Rochen—Carez foundation of an English Patent—Gengembre and Herhan—Efforts in the art, to form Assignats—Herhan's Process of striking the Mould in Semi-fluid Metal—His new method of composing Matrices instead of Types—Applegath and Cowper's New Patent for striking the Mould—Similarity to the Methods of Carez and Herhan—Mr. Brunel—His Patent for a New Mode of Stereotyping—Advantages—Not yet applied to Book-work—Very similar to Hoffman's.

In conformity with the plan adopted in this work, of describing the several methods used in every department of printing, with the variety of machinery either deemed the best, or most generally known and in practice, by which the different processes are effected; and then of briefly noticing the various methods and machines adopted by some, and proposed by others, I shall now shortly mention the several inventions and variations in the stereotype art attempted since the time of Van der Mey, Gedd, Tilloch, and Lord Stanhope. In these descriptions we shall find that the French possess, as usual, the numerical superiority on the score of variety; and that all those of our own country who have proposed methods essentially differing from that which is fairly designated The Stanhopean Method, have borrowed their ideas, in great part at least, from what has been made public by the artists of that nation.

"The year 1784 is a memorable era in the history of stereotype and polytype printing, in France, as the attempts which were made in that year, in these arts, by François-Ignace-Joseph Hoffman, a native of Alsace, but residing at that time in France, excited the emulation of the artists of that nation, and produced an uninterrupted series of efforts, which, in the course of twenty years, brought the art of stereotype printing to that state of perfection in which it is now there practised. Availing himself of the then recent discoveries of Darcet, respecting the easy fusi-

bility of certain alloys of bismuth,* Hoffman attempted to apply some of these to the formation of stereotype plates, by pressing them into moulds or matrices, the idea of forming which from pages of type he had taken from the previous essays of Gedd.

"He thus describes his process in a manuscript memoir, quoted by M. Camus—'With a page composed of types in the usual manner, he made an impression in a mass of soft fat earth, mixed with plaster (gypsum), and prepared with a glutinous paste of syrup of gum and potatoe starch. This impression became a matrice, into which a composition of lead, bismuth, and tin, being pressed at the moment of cooling, gave plates which exhibited, in relief, fac-similes of the types which had been used to form the matrice.'—In another part of the same memoir, it appears, that, before pouring the alloy into the clay matrices, he heated, in a stone, both them and the trowel with which he spread and pressed the alloy into them, in order to prevent a too rapid and unequal cooling of the metal. Instead of the composition above-mentioned, he sometimes used clay, mixed with Spanish white and Champagne chalk. The solid plate, which was the result of this process, when squared and properly adjusted, he fixed with pins upon a square block of walnut-tree wood."—Hodgson, p. 55—57.

M. Pingeron formed a composition of talc, gypsum, clay, tripoli, sand, &c. for the mould, into which he poured the type metal. He used, also, a sand-pit for the same purpose; and a composition of German spar, sal-ammoniac, &c. which would bear several castings before destroyed.

Another French artist, Rochen, proposed to set up a whole stereotyping establishment in the compass of a box, forming the appearance of a book! like Fraser's "much-admired Solanders," to contain pamphlets: or like our family draught and back-gammon boxes. The stock of types to be sufficient for four lines! the mould to be taken in gypsum with charcoal powder; and seven or eight pieces of this stereotype to be joined on one block, to form a page! These fooleries and burlesques soon gave way to some-

"* Six parts of bismuth, four of tin, and three of lead, form an alloy, which becomes very soft at the heat of boiling water, and which may be kneaded, like wax, when half fluid; eight parts of bismuth, five of lead, and three of tin, form an alloy, which melts at a heat less than that of boiling water."

thing more substantial, and truly scientific. In 1787 Joseph Carez, printer, of Toul, in France, brought to some degree of perfection and utility, a process which he called *homotype*, or *many types in one*. This appears to me the more interesting, as having close affinity to a method for which a patent has been lately taken out in this country, and which will, in due order, be described; to prevent any imputation of prejudice on my part, I shall copy the description of Carez as given by Mr. Hodgson, from M. Camus. "The page, after being composed in the usual way, with moveable types, and carefully corrected, was inclosed in an iron chase, in which it was firmly held by screws. It was then attached, with the face downwards, to the underside of a block of oak wood, suspended from one arm of an iron lever, or swing beam (bascule). Upon the top of a wooden pillar, resting on the ground, and immediately underneath the page, there was placed a thin card or paste-board tray, rubbed over with oil. The workman then took from a furnace close at hand, a quantity of melted type metal, which he poured into the paste-board tray, and attentively watched its cooling. The moment that it began to be covered with a slight cloud, he let the block of wood and page fall upon it, and thus an impression, *en creux*, of the page was formed. The whole was then detached from the block; the page and the plate were separated, which was done very readily; and the plate was carefully examined. The workman then took off what was necessary, cut down the edges, and lastly, fixing this plate to the under side of the block, or *ram*, he let it fall upon some fused metal, placed, as before, on the sole of the machine, and thus obtained a plate, in relief, fit for printing with. This plate was then carefully examined and cleaned; its edges were cut off, sufficient being left at top and bottom to afford hold for a screw. The plate was then reduced by a plane to a determinate thickness, which was scarcely the twelfth of an inch below the nick of the letter. In this state, when wanted, it was attached by screws to a block of wood properly adjusted, and impressions taken from it in the usual manner" [pp. 66, 67.] It appears that M. Carez was eminently successful in his new process, and about 1786 and 1787 completed many works of magnitude, including a Dictionary and Bible, in close Nonpareil type. In 1792 Hoffman attempted a mode of producing stereotype plates, to avoid the expense of the composition of pages, and this with a

stock of only 370 types! "Each of his types [some of which, by the by, were logotypes] was fixed in a block of copper, which, by its incisions and notches, furnished the means of placing it at a right angle upon the piece of clay intended to form the mould, and of sinking it perpendicularly, and to a precise depth, into it."

"A piece of clay [as described in p. 873] was pressed into a frame; a rule being fixed at the bottom of the first line, the knife or plane was slid along it, and the space of the line marked out. Each type was then sunk into the clay, care being taken to hold it against the rule in such a manner, that by means of the notch in which the rule fixed itself, the impression was always upright and of equal depth. The plate was then obtained from the mould in the manner of Carez"—[see preceding page]. But I feel that I should apologize to my professional readers for wasting time and paper in relating such ridiculous schemes.

"It does not appear that any works were ever executed according to this process; indeed" Mr. Hodgson very justly observes, "it is most probable that there never were any, for it must be evident to every one at all acquainted with printing, that it never could be successful. For independent of the extreme, and, I should think, insurmountable difficulties of sinking each letter into the mould exactly perpendicular, and neither too distant from, nor too near to its adjoining letters, and all of them to the same exactly determinate depth, the thickness of the thinnest possible piece of paper making a material difference in printing, it would be utterly impossible to preserve the square appearance of a page; for as the person who was forming the mould would never know, until he arrived at the end of a line, how many letters it would contain, he would be reduced to the necessity of either making improper divisions, or of leaving the lines of unequal lengths. And it may well be doubted, whether the labour and time required for the formation of such a mould, would not be infinitely greater than for the composition of a page."* No doubt can exist but that a compositor would beat the mould-stamper, five to one, unless it is to be reckoned that the mould-stamper must be infallible, then, indeed, as an establishment of *readers* would thus become an useless expenditure, they might each throw aside the pen, take a work in

* Hodgson, p. 71-2.

hand, and commence operation with 370 types, completing the work as they proceeded; saving proof-paper, correcting, author's labour (for of course no proof could be taken till the plate was cast), and every thing—excepting time!

Many experiments in stereotype, polytype, poly-plate, and every other kind of printing, were made by order of, or for the purposes of, the French government, during the period of the revolution, for supplying the requisite issue of assignats, and guarding, as much as possible, against forgery. Of these the most deserving of notice was that of Gengembre, afterwards engineer of the Mint; but as his experiments, in which he was joined, as partner, by his brother-in-law Herhan, relate more particularly to what was to be produced by *plate-engraving* and printing, it would be stepping over the line drawn for the subject of this work, to dilate upon them here; and they will, therefore, only be briefly recurred to when necessarily united with typographical printing.

Omitting, then, to recount the many processes by which it was attempted to form a paper currency which should approach nearest in degree to the desired end of preventing forgery, I pass over to the period when the several scientific men directed their efforts to unite all parts of the note; namely, the letters, words, ornaments, &c. into one matrix, in order to form a stereotype plate which could be multiplied *ad infinitum*, not only imitative, but in perfect fac-simile, or identity, with each other. "These several parts being fitted together, forming one true and level face, were mounted upon a sole of copper or steel, and inclosed in a steel frame or box, the sides of which projected a little above the face of the matrix. A plate was then obtained from the matrix by means of the stereotyping, or striking machine, which was thus constructed and used: a table was firmly fixed, as high as the hand; and upon the back part of it, two pieces of wood, of a convenient height were erected, in such a manner as to leave a groove, or channel, between them. Between these two uprights, a mass of wood was made to ascend and descend, in the same manner as the ram of a pile-driving engine. In the under surface of the block of wood, and perpendicular to its axis, there was fixed a screw, which by fitting into a female screw, on the back part of the box, inclosing the matrix, attached it firmly to the block of wood, or ram. The face of the mould was thus turned

downwards. The ram was raised by means of a winch and handle; and a tray of strong paper was placed upon the table, immediately below the same. Into this tray some melted type metal was then poured, and the sides of the paper alternately raised to cause the metal to flow from the edges towards the middle. When the metal was upon the point of becoming fixed, the pulling of a trigger disengaged the ram, which then slid down between the two uprights, and fell with all its weight upon the metal. The ram was afterwards raised, and the metal separated from the matrix with the blade of a knife; there was thus formed a plate, bearing in relief the imprint of the matrix. The frequent repetition of this operation produced the requisite number of plates, all perfectly identical. The plates were then dressed to a proper substance by means of a turning lathe, as described in page 867. In order to give a greater degree of pressure at the moment of striking, it was contrived to form a re-action of the table against the ram at the moment of *striking*. The feet of the table were fixed into boxes containing spiral springs; these being compressed by the fall of the ram, compressed in return, by their re-action, the still hot metal against the matrix."*

I may appear too prolix in describing this *striking* mode of stereotyping, by Herhan, as well as of that of Carez in a preceding page; but when the reader arrives at the knowledge of modern inventions he will be fully aware of my motives. In 1795, M. Gatteaux and M. Anfry practised another method of forming the mould or matrix; namely, by sinking the face of the original page of types into a plate of cold metal: but this required a previous arrangement, of rather too expensive a nature ever to become generally useful. The common type metal being too soft to bear this operation without considerable damage, a composition was formed in which some portion of silver was used; the type being cast (I should conceive with considerable difficulty) of this mixture, and a page set up and corrected, it was impressed, by means of a screw-press, into a plate of soft lead. M. Herhan improved upon this by inventing an alloy much less expensive; but it must be evident, that any mode of stereotyping requiring so much previous concert and arrangement, must ever be very confined in its utility or practice. In 1798 Messrs. Herhan and Didot, and M.

* Hodgson, pp. 86, 89.

Gatteaux, obtained, individually, patents for new inventions in stereotype, and the two former entered into partnership in order to prosecute their inventions with united success, and published a long series of the classic authors, well known throughout Europe for their cheapness and neatness. Their mode was that of the metal matrix just above described, and *striking* with hot metal; but Herhan subsequently adopted a new process, the object of which was, "to form a set of types, or rather separate moveable matrices, each of which, instead of presenting a figure of the letter in *relief* and in *reverse*, should bear an impression of it, in right order, as when printed, sunk into its end, so that when the page should be composed with these types, it would become, without any other operation, one complete matrix, with which the plates, in *relief* and in reverse, could be *struck* as before described." To effect this, punches were cut in the usual way, on steel, but with a shoulder to prevent going beyond a given depth. A machine was constructed, by which the punch could be brought down perpendicularly upon the end of the piece of metal to form the matrix upon. Many experiments were made by alloys of different proportions with lead, to cast in a common type-mould the blank pieces of metal, which were afterwards to be struck with the punch. These failing in the requisite degree of hardness, he was obliged to form their shanks wholly from plates of fine copper, cut into rods, and by machinery drawn into the requisite thickness for the size and body of the various letters, and then cut into equal lengths, nicked as types, &c. Each piece was then singly fixed in the machine, struck with the proper punch, and formed the matrix. The spaces and quadrats were pieces standing much higher than the letter-pieces, and thus formed a deeper impression in the cast afterwards taken.

Thus every type wanting in a printing-office for this process of stereotype, must go through the separate manual operations of filing, dressing, arranging, striking with the punch, lining, and properly adjusting for the nicety of printing. It would appear in this country a labour for which no adequate remuneration ever could be expected. It is plain that the compositor's practice must be completely reversed—he must either compose and spell backwards; or begin at the right-hand end of his stick; or at the bottom of the page, instead of the top; or transpose every line after setting

it. Proofs, it is evident, there could be none for the first stage of the work: a plate must evidently be first cast; then an impression taken; read; and the corrections made in the page of matrices; then cast again, &c. &c. till finally correct. It is scarcely possible to believe that such a process can be practised with any degree of success, but that the old, original mode of converting the whole type, as by Van der Mey, would be infinitely better, more expeditious, and less expensive, than M. Herhan's stereotype; yet M. Camus gives the description with every particular of authenticity; Mr. Hodgson expresses no disbelief of it; and to him I shall refer the reader, desirous of further information, for more lengthened details of the process, and specimen of work effected by it—see p. 101-111.

The last improvement upon Herhan's process which has come to my knowledge, is that by M. Porterat, who, to avoid the inconveniences I have mentioned in the preceding page, as affecting the processes of composing, proving, and reading, formed a set of types uniting the usual mode and that of M. Herhan, by having the letter in relief at one end, and the matrix or sunk letter at the other; the latter being of copper, the former of usual type metal, both united by soldering. Thus the compositor may proceed in the usual way, the lines be corrected, and then a plate struck from the reverse side; for the projector only proposes two lines at a time to be done, upon account, I should imagine, of the expense of the materials.*

In England a process of stereotyping, as far as relates to the moulding and casting, very different from the Stanhopean process, but very similar to the French, was, not long since, made the subject of a patent. This method consists in the formation, from the page of type, of a metallic mould or matrix, while the metal is in a semi-fluid state; and then, by fixing the mould in the place of the type-page, casting, or rather striking a plate in relief upon the metal in the same semi-fluid state. I am very credibly informed that this process was practised in Scotland several years ago; and it is, therefore, a fair presumption that the method possesses no superiority; or it would not now have been sufficiently novel to have formed the subject of a patent.

The process is described in the Specification as being effected by

* See Repertory of Arts, January 1820.

suspending the page of type, face downwards; and then having the metal, in a state of fusion, poured into a piece of dry cartridge paper loosely folded up as a box or trough, placed under the suspended type; and when the metal in this paper dish becomes cool, just on the point between '*fusion* and *fixity*,' it is struck, by the disengagement of a spring, by the type, and thus the impression is found *en creux;* and with some little trouble afterwards, the type is disengaged from the matrix. The back of the mould has then to be 'made true by turning, planing, or filing;' and then the plate is to be struck or cast by the same process, and its back to be turned, to make it true and parallel to the face.*

To form a judgment of the originality of this invention, I refer my reader to the description of the homotype process of M. Carez; also to those of M M. Gengembre and Herhan, which have been described in preceding pages. M. Carez appears to have practised the method of suspending the type-page, and striking the semi-fluid matrix, about thirty-one years previous to the patent of Mr. Applegath. I have not been able to ascertain the date of the practice of a similar method in Edinburgh, as mentioned in the preceding page, in order to dispute the originality of M. Carez' invention; but I should rather, from some circumstances, incline to the side of the French artist. At any rate, the English patentee can have no claim, except, perhaps, on account of the improved spring-ram, or drop, to an exclusive right to this mode of stereotyping; I, however, do not expect it will ever be thought worth contesting.

The latest invention brought forward in this art, in England, is that of Mr. Brunel, of Chelsea. His object, which is expedition in the process, was, at the time, solely adapted to the view of stereotyping daily newspapers, in order to set two or more printing machines to work instead of one; or to apply the columns of a newspaper to a cylindrical press, instead of an horizontal machine, and thus increase the rapidity of the produce. The invention consists, first, in a new mode of taking the moulds; and secondly, in a new mode of attaining the stereotype plate from such moulds. His process is, by pressing on the type the material which is to form the mould; for which purpose he proposes to make a com-

* The specification of the patent of Mr. Applegath may be found, with a plate, descriptive of the *spring-ram*, in the Repertory of Arts for Jan. 1820. Vol. XXXVI N. S. p. 69.

position of seven parts pipe-clay, twelve parts chalk or burnt clay, very finely powdered, and one part starch, making twenty equal parts in bulk, not weight. These ingredients, being incorporated with water and made into a paste, about the consistency of stiff putty, are to be spread over a steel plate, somewhat larger than the stereotype plate proposed to be cast; which steel plate is to be about the thickness of a saw-blade. The types being secured in a chase or galley, and the clay spread upon the thin plate of steel, as above described, a skin of parchment is then spread over the composition, and several thicknesses of thin calico (stretched in a light frame) over the types. The plate of steel, connected to the galley of types by hinges, is then, with its layer of clay, covered with the skin of wet parchment, turned over upon the types, and pressed or rubbed with sufficient force to spread or distribute the clay into the general form of the intended stereotype plate. The use of the skin of wet parchment and the coverings of calico is, to prevent immediate contact between the clay and the types while the clay is spreading or disposing itself over the mould-plate. After the general form of the proposed cast is thus produced, the coverings of parchment and calico are then removed, and two thin sheets of paper substituted in their place between the clay and the types. The process of turning the mould-plate with the clay on the types is again repeated, and the whole passed under a rolling press, by which the impression of the types is rendered more distinct. The two sheets of paper are then removed, and the type slightly brushed over with oil, the mould-plate is again turned down, and the last or finishing impression given to the mould: the clay and the types being this time brought into immediate contact, the impression of the mould is perfected. The flexibility of the mould-plate greatly facilitates the operation, and the thinner the mould-plate is rendered, the better. The mould-plate is placed in a tray of proper dimensions to form the plate, having an edge or rim about one inch high, the bottom of which tray is full of holes, for the purpose of admitting water to cool the mould when the hot metal is poured in to produce the cast. The metal to be used for the stereotype plate may be the same as usual; but when expedition is required, the well-known alloy of bismuth ten pounds, lead six pounds, and tin four pounds, may be used by heating it to about 400°. The mould-plate being

laid in the tray, with the face upwards, a plate of cast-iron is placed upon it, raised, by adjusting screws, so as to regulate the required thickness of the stereotype plate about to be cast, and render it perfectly parallel. Things being thus disposed, the whole is to be heated to about 200° before the fused metal is introduced to the mould. When this is done, the metal is poured out, having insinuated itself into the mould and filled it up to the regulating plate; cold water is injected by a flexible pipe from a reservoir into the tray, which, coming in contact with the mould, cools the cast immediately. The superfluous edges of the cast are then broken off, the composition of clay, &c. washed from the stereotype cast, and the new-formed plate may be then considered as fit to be printed from.

As it is requisite to have a great pressure upon the metal when the finest casts are made, it is proposed, under such circumstances, to place the tray with the mould, &c. heated as above, in a chamber which can be closed with a lid and luted so as to be air-tight; this chamber containing the mould may be exhausted, and then the fluid metal introduced by means of a tunnel and stop-cock to the mould, which fluid metal, when it has perfectly insinuated itself into the mould, may be acted upon or pressed by condensed air admitted into the chamber from a condenser attached thereto. In this situation cold water can also be injected into the tray for the purpose of cooling the cast as before described.

As the mould-plates, even after they have been dried, are sufficiently flexible to bend to any shape, it is proposed, if required, to cast plates shaped in segments of curves, or portions of cylinders, by attaching the moulds to the outsides of the corresponding cylinders, and placing them within other cylinders, so as to leave a parallel space between both for the fluid metal to flow in casting. It is to be observed, that these cylinders must be heated as above before casting is attempted.

A very expeditious mode of constructing a substitute for stereotype plates is also described, by spreading a coating of shell-lac upon a plate of iron, and hardening it by the fire until it is capable of receiving an impression; it is then dipped into the type metal and coated as if tinned, and then placed upon the mould as above made, and left there to cool under a press, which substitute is described as being remarkably perfect and stable; there are several

modes of modifying the above plans, which are all claimed as parts of the above-recited invention for improvements in making stereotype plates—*Inrolled, July,* 1820.

It will be evident, that from the thin coating of the clay, or composition, spread upon the steel plate, and the gradual process of pressing this upon the face of the type to form the mould, that it will sink only the depth of the counter-sink of the face of the type, and very little below the depth of the shoulder of the type in the interstices left by the spaces, quadrats, space-lines, &c. so that no previous preparation of the founts to be used, such as square shoulders, high-spaces, quadrats, or leads, will be necessary in Mr. Brunel's process. There must be a saving, also, in the expense, and less dirt occasioned, than by the use of gypsum; and I should imagine, if it were worth the trouble, the composition, by grinding and mixing with water, might be used over and over again. The wear of the type also must be infinitely less than by any other process of forming the mould, since, except from the slight oiling before the last pressure, or the accidental adhesion of a piece of the wet thin paper, there will be nothing to clean off from the whole process. The breaks and picks also, unavoidable in the gypsum-moulding, will be wholly obviated; and even by the regular thickness which seems attainable by this process, the use of the lathe may, perhaps, be rendered unnecessary.

This invention has been so far effectual that I have seen a column moulded, cast, and fixed complete for working from, in 20 minutes; but the apparatus must be very expensive. How far it might be reduced if adapted only to book-work pages, I am unable to estimate precisely; but I should suppose it might be completed at as small an expense as the Stanhopean method, and I should think, in that case, it would merit a trial.

Here again the question of originality starts forward, and I must refer to what I have stated in a preceding page, [873] as the process of Hoffman in Paris, in the year 1804, which, in many respects, is exactly similar to that of Mr. Brunel—even the trowel described by the former is used by the latter.

WORKING THE PLATES.

SECTION V.

Of fixing Stereotype Plates for working—Nailing on Blocks of Wood—Lord Stanhope's Iron Blocks, with Ledges and Screws—Cement Blocks—Universal Plate, with moving Ledges—The Author's invention for this purpose.

THE stereotype plates being completed by the hands of the picker, the next consideration will be the working them at press. It is first necessary to raise them, by some mechanical means, to the same height as type, which is effected by various methods. Lord Stanhope says, "It became necessary, in the progress of the art, to devise a method of fixing the plates upon the press with facility, and to enable the workmen to enlarge or diminish the margins as wanted. It is true, that former stereotypographers could not proceed without attending in some degree to this point. But they were content with the clumsy shift of nailing the plates upon blocks of wood; a method evidently very ill calculated for general use, when the art became more perfect, as the plates would unavoidably be exposed to great injury by the irregular warping of the wood. I have contrived iron blocks, which are cut to such a thickness, that a plate and a block together are exactly type height. There is an overhanging ledge upon each side of the block, the whole length of it, and cut to fit the sloping sides of the plate. One of these ledges is fixed; the other moveable, to admit of putting in and taking out the plate. In the moveable ledge there are three screws, by which the plate is held very flat and firmly. Different margins, to the different sizes of paper, are made by placing the blocks at a greater or less distance from each other."—*Stanhope Manuscript.*

Another mode has been practised, by laying the plate face downwards on the stone, and surrounding it with four straight pieces of iron of the exact height of moveable types, so as to form a mould precisely of the shape of the page, which being filled with a quantity of Roman cement, mixed to a proper consistence, the

excess of the cement being struck off correctly level with the iron frame, it is obvious that the plate and cement together will form a plate similar to a page of moveable type. If there were no other objection it is evident, that the room requisite to deposit the pages of a work upon this plan would be an insurmountable one.

Another method of mounting stereotype pages is by nailing them to a board of the proper height. But the more mechanical method upon this principle is a plate of iron, with sliding ledges, for each page—a plan which has been adopted by some whose work lies chiefly in stereotype.

But neither of these methods is applicable to the convenience of a printing-office for general business. The expense of the first is very great, as every metal block must be turned in a lathe to procure a truly plane surface; and then it must be fitted up with the ledges and screws. The cheaper substitute has been blocks of wood, with brass ledges; but even these are expensive, and extremely liable, although made ever so fine in the first instance, to become afterwards defective; like the metal blocks, too, they can only serve for the same size of page for which they were originally made: and as the lowest expense of the cheapest of these contrivances is from ten to fifteen shillings a block, a printer must work many reams of paper before he can be repaid his expenses.

These considerations induced me to invent an apparatus for raising stereotype plates, which could be easily formed into pages of any size required for either the smallest or largest plate, and suitable to the ordinary mode of imposing; and which, although of little weight, would, from their construction, so effectually resist all pressure that could possibly be applied, that, supposing the plates made of one uniform thickness, no possibility would remain of one part ever printing fainter than another from any defect in the mounting; as is the usual case where wood (which will alternately expand or contract as more or less subjected to moisture) forms any material part of the apparatus. The expense of these is trifling when compared with that of procuring the metal, or wood-and-metal blocks commonly used; which, being necessarily provided for the various sizes of page occurring in the routine of business, must be of serious amount; particularly when of the best workmanship, and turned with any sufficient degree of accuracy.

The patent stereotype plate raisers, with the holdfasts or claws,

may be thus described :—The raisers are made of metal, cast in a peculiar mould. They are formed with quadrilateral sides; first, to four Pica ms; then, of other larger figures—as four by eight; four by twelve; and four by sixteen : also of smaller ones, as four by two; four by one; and four by a half. In height they are about three-fourths of an inch; or sufficient to raise the plate to the usual height, or somewhat higher than common type. These being cast and dressed perfectly true, both in body and height, admit of being easily combined to form the size of any page necessary, with the certainty of having a uniformly plane surface for all the plates, however numerous. The several pieces are cast hollow to prevent unnecessary weight; and the larger combinations have divisions to give sufficient support to every piece against any pressure which can be brought upon it.

The holdfasts, or claws, are formed of brass or tin, with a projecting bevil at the top, having the holdfast, or claw, in the middle, or towards each end. The height of the claw is sufficient for the projecting bevil to lie upon the flanch of the plate when resting on the raisers.

To prepare plates for working.—Form, with the raisers, the requisite number of pages for the forme or sheet, by the various combinations, and any difference that may be wanting in length or breadth make up by reglet, leads, or scale-board; then lay on the plates; and at the side of each, place such holdfasts as may, from the size of the plate, be deemed sufficient for proper fastening; after which, proceed to make margin or dress the formes, and lock up in the usual mode.

To change the plates.—When worked, unlock the forme; slide off the done-with plate; replace by a new one; lock up again; and if the plates have been all cast truly to one gauge in thickness, width, and length, you will have, throughout the whole work, exact and uniform register, and equal impression. When the work is completed, the same raisers and holdfasts, by admitting of every necessary variety of combination, may be formed into any other sized pages for any other sized plates.

The cost of these raisers, sufficient for a sheet, is not so much as for a sheet of the ordinary metal blocks; and the advantage which results is, that an office is at once provided with a stock sufficient to keep two presses constantly going of any sized work, without any

additional expense: for if they have been used, for instance, for pages of octavo, a few minutes time will serve to convert them into pages of duodecimo—of octo-decimo, &c.—having a few over of each size to enable the various measures and lengths to be accommodated: and the metal is, at all times, worth a considerable portion of the original cost.

I must just mention, in this place, that a patent was taken out, in 1821, by Mr. James Fergusson, for "An Invention to make use of Elastic Substance in Stereotype-printing." This was accomplished by inserting cork, or other elastic substance between the plate and the block, or raiser, which should yield to the pressure upon the thicker parts of the plate, and at the same time afford the necessary resistance for obtaining sufficient strength of impression from the thinner part. But having thus noticed the patent, I shall say nothing further about it.

ON POLYAUTOGRAPHIC PRINTING,

OR

LITHOGRAPHY.

CHAPTER XVII.

Invention by Senefelder—His Work; published by Mr. Ackerman—Origin of the discovery—Lithographic Stone—Ink for Lithography, and method of inking it—Paper for transfer—Preparation of the Stone—Cylinders for inking the Stone—Paper for Lithographic Printing—Numerous causes of failure in the Drawing—Lithographic Presses—The Upright Lever, or Pole Press—The Bavarian Cylinder, or Star Press—Mr. Ruthven's Press—Various styles of Drawing applicable for Lithography—Advantages of Original Drawings on the Stone—General opinion upon public advantages of the Process, and how far Lithography and Typography are likely to affect one another—Comparison of Prices.

THIS mode of printing, by engraving or etching *in relief* upon stone, was brought into England about twenty years since. The inventor was Mr. Alois Senefelder, an actor at one of the theatres in Munich, the capital of Bavaria. In 1801, he made an assignment of his art to M. André, for the purpose of enabling him to take out a patent in this country; but it met with very little encouragement. Mr. Senefelder pursued his invention with ardour from that period, and in some places with success. The art was revived in London by the means of Mr. Ackerman of the Strand, who, in 1819, published in quarto, "*A Complete Course of Lithography, &c. by Alois Senefelder, Inventor of the Art of Lithography and Chemical Printing:*" and Mr. Hullmandel, who has practised the art in this country with the greatest success, has since published "A Manual of Lithography, translated from the French of M. Raucourt," and subsequently a more practical work, entitled "The Art of Drawing on Stone." From these works I shall endeavour to give a clear account of the general principles and practice of Lithography.

"Lithography," says Mr. Hullmandel, "is founded on mutual and chemical affinities, which hitherto had never been applied to the art of engraving. The Art may be divided into two parts; 1. The Execution of the Drawing; 2. The Printing. The former requires but little practice, as any person who understands drawing may meet with success; the latter is filled with difficulties; for no lithographic printer has hitherto been found, who can be quite certain of success in printing delicate and highly-finished drawings.*

"The first part consists in drawing on a stone, which has been previously made perfectly level and smooth, with an ink or chalk composed of greasy materials, in the same way as one would execute a drawing on paper with ink or common chalk; the second consists in taking the stone, as received from the draftsman's hands, and obtaining impressions from it, as one would from a copper-plate. To obtain these impressions, the lithographic printer wets the whole surface of the stone; but as the greasy chalk which constitutes the drawing, has a natural aversion for water, those parts of the stone alone which are not covered with the chalk imbibe it. The printer, while the stone is still wet, passes a thick and greasy ink over its whole surface, and the greasy lines of the drawing receive the ink, while the wet surface of the stone refuses to take it; a sheet of paper is now strongly pressed on the stone, which, receiving the printing-ink that has been applied to the drawing, gives a reversed fac-simile of the original one: the stone is wetted afresh, afresh charged with ink, and thus a series of impressions are obtained. In the above description consists the whole art of lithography.—The same result is obtained as in printing from copper-plate, but by different means: the process of engraving is entirely mechanical, that of lithography entirely chemical."†

Mr. Senefelder, in 1809, was appointed Inspector of the Royal Lithographic Establishment at Munich, with a salary of 1,500 florins (1*s.* 6*d.* each = £112 10*s.*), which he says, "has made his fortune; secured him from want the rest of his days; and placed him in such circumstances, that he need not look to his art alone as a means of subsistence."—Happy man!

* Some specimens lately published show that Mr. Hullmandel himself can ensure all the desired success.

† Hullmandel, p. 1 and 2.

Some circumstances of authorship led him to "pass more than *one whole day* in a printing-office, and made him acquainted *with all the particulars of the process of printing*:"—the slight and hasty intuition of Mr. S. is certainly visible enough from some of the out-of-the-way projects into which he states himself to have been led—something like a traveller taking a rugged and round-about road to come sooner to his journey's end, when the *via trita* lay open before him. For instance, his plan of "engraving letters on steel and stamping them in formes of hard wood" (singly, of course), "and thus forming a sort of stereotype composition from which impressions could have been taken, in the same manner as from a wooden block," was not very likely to supersede the art of stereotyping to which he compares it, any more than was his "paste composition for taking the moulds," or "the sealing-wax and plaster-of-Paris composition, much harder than the type-metal of lead and antimony," with which the plates for printing were to be formed.

Notwithstanding these observations upon the folly of representing himself to have become acquainted with "all the particulars of the process of printing," by attending a day or two in a printing-office to superintend the progress of his publication (a play), it is not meant to deny to Mr. Senefelder all the praise he can desire for his perseverance and success in pursuing his invention, as well as for his candour in stating how far it may be usefully employed. It is frequently to be observed, that persons having new inventions or schemes to propose, cast a suspicion upon their projects by the excess of their sanguine proposals. I remember, when stereotyping was first established, the projector proposed to have companies and partnerships instituted, the members of which were to be share-holders according to certain regulations, and *every thing* was to be done by stereotype, even to the daily newspapers.

Not so with Mr. Senefelder. He says, "There is no invention in this sublunary world which unites in itself all the advantages and all the excellencies that might be wished. Lithography does not constitute an exception to this remark. It may, indeed, be said of the art of lithography, that neither type nor copper-plate printing can be dispensed with in consequence of its invention; though it is not impossible that, by farther improvement of the

presses, it may one day combine the advantages of the other modes of printing with those peculiar to itself; but, at present, the facility and quickness of composition; the equality and correctness of the single letters, which can be obtained in type-printing, give to this art a decided superiority for many purposes. Some subjects, however, that hitherto have been executed by types, such as circulars; bills of exchange; invoices; cards; addresses, &c. can be executed by means of lithography more quickly, and in greater perfection, than by types."—" In both the ordinary methods of printing (namely, the letter-press and copper-plate) the charging the types or plates with colour, by which the impression is obtained, depends entirely upon mechanical principles, viz. that in the letter-press printing the colour adheres only to those places which come in contact with it; and, in the copper-plate printing, to those from which it is not wiped off."

" The chemical process of printing is totally different from both. Here it does not matter whether the lines be engraved or elevated; but the lines and points to be printed ought to be covered with a liquid to which the ink, consisting of a homogeneous substance, must adhere according to its chemical affinity and the laws of attraction; while, at the same time, all those places which are to remain blank must possess the quality of repelling the colour. These two conditions, of a purely chemical nature, are perfectly attained by the chemical process of printing; for common experience shows that all greasy substances, such as oil, butter, &c. or such as are easily soluble in oil, as wax, bitumen, &c. do not unite with any watery liquid without the intervention of a correcting medium; but that, on the contrary, they are inimical to the water, and seem to repel it. The principal dissolving and uniting liquid for the above-mentioned substances is alkali, which, by proper management forms a sort of soap soluble in water. Upon this experience rests the whole foundation of the new method of printing, which, in order to distinguish it from the mechanical methods, is justly called the chemical method; because, the reason why the ink, prepared of a sebaceous matter adheres only to the lines drawn on the plate, and is repelled from the rest of the wetted surface, depends entirely on the mutual chemical affinity, and not on mechanical contact alone."

Mr. Senefelder's first experiment only went to the application

and use of the stone plates as a substitute for those of copper; but one of those trifling circumstances (to compare small things with great ones) to which many of the greatest discoveries and inventions are indebted for their origin, struck out at once a new prospect to his view, and by a series of patient experiments, enabled him to bring his object to the present degree of perfection. "I had," he says, "just succeeded in my little laboratory, in polishing a stone plate which I intended to cover with etching-ground, in order to continue my exercises in writing backwards, when my mother entered the room and desired me to write her a bill for the washer-woman who was waiting for the linen. I happened not to have the smallest slip of paper at hand, as my little stock of paper had been entirely exhausted by taking proof impressions from the stone; nor was there even a drop of ink in the ink-stand. As the matter would not admit of delay, and we had nobody in the house to send for a supply of the deficient materials, I resolved to write the list with my ink prepared with wax, soap, and lamp-black, on the stone which I had just polished, and from which I could copy it at leisure. Some time after this I was just going to wipe this writing from the stone, when the idea all at once struck me, to try what would be the effect of such a writing with my prepared ink, if I were to bite in the stone with aqua-fortis; and whether, perhaps, it might not be possible to apply printing-ink to it in the same way as to wood engravings, and to take impressions from it.

"I immediately hastened to put this idea in execution; surrounded the stone with a border of wax, and covered the surface of the stone to the height of two inches with a mixture of aqua-fortis and water, which I left standing on it; and on examining the effect of this experiment, I found the writing elevated above a tenth part of a line (or 1-120th part of an inch). Some of the finer, and not sufficiently distinct lines, had suffered, in some measure, but the greater part of the letters had not been damaged at all in their breadth, considering their elevation; so that I confidently hoped to obtain very clear impressions chiefly from printed characters, in which there are not many very fine strokes.

"I now proceeded to apply the printing-ink to the stone, for which purpose I first used a common printer's ball; but after some unsuccessful trials, I found that a thin piece of board

covered with fine cloth answered the purpose perfectly, and communicated the ink in a more equal manner than any other material I had before used.* My further trials of this method greatly encouraged my perseverance. The application of the printing-ink was easier than in the other methods, and I could take impressions with a fourth part of the power that was requisite for an engraving, so that the stones were not at all liable to the damage of breaking; and what was of the greatest moment to me, this method of printing was an entirely new invention which had occurred to nobody before me. I could, therefore, hope to obtain a patent for it, or even some assistance from the government (Bavaria) which, in similar instances, had shown the greatest liberality in promoting and encouraging new inventions which I thought of less importance. Thus, the new art was invented, and I lost no time in making myself a perfect master of it."

The chief materials requisite in lithography, besides the press, are, first, the stone; secondly, the ink, composed of wax, soap, &c.; thirdly, the preparation for the stone, as, gum, aqua-fortis, or other strong acids; fourthly, the oil, varnish, and lamp-black. After an experience of twenty years, Mr. S. has not, in any of these fundamental principles, improved, altered, or newly-discovered any thing.

The Stone—found to answer for all the purposes of lithography better than any other yet discovered, is a sort of calcareous slate, pure, hard, and of a fine grain, imbibing both moisture and grease with equal avidity, on which principles the whole art of lithography is founded. It is procured in Bavaria, and particularly in the village of Solenhofen. In its chemical decomposition, it is found to consist chiefly of carbonate of lime: in nitric, muriatic, and other acids, it will almost entirely dissolve, and the carbonic acid escapes in the form of gas.

Stone of this species, or possessing the necessary qualities for lithography, was, for some time, considered as unobtainable from any other source,† and none has yet been discovered which unites

* He does not state by what means he communicated the ink equally by this process.

† From this opinion the Society for the Encouragement of Arts were induced to offer the following premium:—To the person who shall discover within Great Britain or Ireland, a quarry of stone fit for the purposes of lithography,

the qualities of purity, whiteness, and hardness, equal to the Bavarian. At one time it was thought that a quarry, near Stratford-upon-Avon, produced a stone equal to the purpose; but this, called by geologists the *white lias*, is of so soft and porous a substance, as to be totally unfit for chalk drawings, or the finer applications of lithography; for the more ordinary purposes of transfers, and slight drawings, it may be an useful substitute. Another species, found in Warwickshire, called the *brown lias*, is so dark, when wetted, as to render the drawing almost imperceptible; neither of these species will split in so smooth and even a stratum as the German, and they therefore require so much labour to rub them down to a smooth and level surface, as to make them nearly as expensive, if not more so, since the repeal of the duty, as the foreign stone. For Ink drawings, *polished* stones of very fine grain are necessary, but for chalk drawings, a rough grain is indispensable.

The best thickness of a stone for the purposes under consideration is from two to two-and-a-half inches. The size of its superficies must, of course, differ according to its intended use. It is split and rubbed down nearly to a level face at the quarry; and again dressed over with sand-stone, and pumice-stone and water, till it is proved to have a truly plane surface. The polishing is then continued with finer materials till judged perfect and fit for use.

The Ink—termed chemical ink, might, from the substances of which it is composed, be more properly named fat, or alkalic, ink It is used either for writing or drawing immediately on the stone; or for covering the surface of it like etching-ground; or for transferring drawings executed on the prepared paper to the stone. The peculiar qualities of it are, filling the pores of the stone in those places to which it is applied, with an oily, greasy substance; and that it will resist, at the same time, the action of the nitre and other acids. It is composed as follows:—

equal at least to the stones imported from abroad—the Gold Isis Medal, or Thirty Guineas.—A specimen of the stone, at least two feet square and two inches in thickness, with an account of the situation of the quarry, and certificates of its possessing considerable extent, to be produced to the Society on or before the last Tuesday in February, 1820.

Wax . .	by weight .	12 parts.
Common Tallow . . .		4 do.
Soap		4 do.
Lamp-black		1 do.
		21

Other proportions are given, to vary the composition according to peculiar circumstances, in some of which shell-lac is added. These ingredients are put together into an iron saucepan, and exposed to a strong fire till the whole of the mass is in a state of ignition. When the quantity is reduced to one-half, the pan is carefully covered, or put into a vessel of water to extinguish the flame and cool the substance. When well mixed, and worked up till cool, it is formed into small cakes, cylinders, or sticks, and preserved for use, and may be applied in the form of a crayon pencil, or dissolved in the softest water to a proper degree of fluidity to write with a pen. The ink may be coloured to any variety, by substituting for the lamp-black, indigo, blue, lake, vermillion, red ochre, &c. so that none of the colours used contain neutral or other salts, which would alter the nature of the soap. The ink must be varied in its component parts according to the purpose to which it is to be applied. The above is given as the proper preparation for immediate application to the stone. For transferring drawings or writings from paper on to the stone, for hard or soft etching, &c. some variation in the ingredients is required; but wax, tallow, and soap form the principal. These must be regulated, in a great measure, by the finer or stronger lines of which the writing or drawing consists. Thus, for writing large characters, the ink must be more fluid than for small; or else, after drying, the strokes will have too much body, and be disposed to spread. This can only be regulated by the judgment and practice of the artist; since the temperature of the room, or even of the atmosphere, has a great influence in these particulars, and it is necessary to use a harder or softer ink accordingly. The paper also requires a particular preparation, in order to prevent the ink from running, and to induce it to transfer more clearly on to the stone. The paper is then wetted with a weak solution of nitric acid, and put on the stone which is previously

rubbed down with water and pumice-stone, and then passed through the press. The whole is then placed in the vessel for biting in, containing a weak solution of the acid. This operation slightly corrodes the surface, and disposes it to imbibe either wet or grease with more avidity. The paper being disengaged, the stone undergoes the preparation with gum, as hereafter described, and it is ready for printing.

The Pens—and many other little utensils must be chosen and adapted by the experience of the operator, and according to the variety of his work. In many instances the steel pen is preferred; in others, the quill-pen of various degrees of hardness, various shapes of shoulder, and progression of nib. For some purposes port crayons and camel's hair brushes will be necessary. Indeed, upon the judicious adaptation and dexterity in using these and other similar utensils, suitable to the ink and subject, depends all the success of this species of printing; as, in fact, may be equally said of any other.

The printing-ink is laid on to the parts which are to appear in print by means of the cylinder or roller hereafter described. The wet parts of the stone refuse to take the ink, while the written parts, being greasy, have an affinity to, and take it freely. It will require several times rolling over, eight or ten perhaps; the paper is then laid on and the pressure applied. When taken off, the workman, with a sponge, washes the whole surface of the stone previous to inking.

In the ardour of his pursuit the inventor next proposes to transfer "all products of printing either with types or wooden blocks; and a newly-printed sheet can immediately be transferred to the stone, especially when the printer, instead of his common ink, has used the above-mentioned colour or ink." But he does not pretend to say that this ever has been done; and it does not appear very likely that, after the preparation of setting the types, reading, &c. of a forme of book-work, any printer or bookseller will prefer a transfer made to stone, to print twelve hundred per day, when a type-press can print three thousand.

I shall not take up the time of my readers with describing Mr. Senefelder's cautions against giving the printed (from type) sheet "too great a pressure, by which the types make impressions or small cavities in the paper," &c. and how to take them out again;

but shall proceed to such lithographic particulars as are more desirable to be known to the practical artist.

The preparation of the stone must be understood to relate not merely to the levelling, smoothing, and polishing; but also to imparting that quality to certain parts of the surface which will repel the colour where nothing is to appear in the printing. This is principally effected by the gum-arabic, or some other similar substance, which, by the previous use of the acid, the stone is rendered ready to admit; but neither the acids nor the gum can affect those parts which are already properly covered with the fat, greasy, or chemical ink: for "a few drops of gum-arabic dissolved in water, if applied to a well-polished stone, produce the effect, that the spot thus wetted will not take colour as long as it remains wet. As soon as it becomes dry the colour adheres to it, but is easily wiped off with a sponge and water. From this it appears that gum alone prepares the stone; or, in other words, imparts to it the quality of rejecting the colour or printing-ink. If, however, the acid has been previously applied to the stone, this quality gains in durability." But it must be frequently renewed, at least twice a day; or whenever the printer leaves off work to go to his meals; as the stone ought never to get dry.

The colour-cylinders or rollers used for charging the stones with ink are of wood, about four inches diameter, covered with flannel or woollen cloth rolled three or four times round, and then covered with calf's skin.

The paper used is of the same variety as for other printing; suited to the subject or price of the print or work. But it appears as if, in the case of works printed on both sides, as in music, writing, &c. much pains and expense will be necessary to prevent *setting-off;* as the inventor says, "a new sheet of blotting-paper ought to be used for every new impression." The previous preparation of wetting the paper depends on the same principle as for other kinds of press-work. The inventor acknowledges considerable difficulty in bringing off good impressions of any work where the excellence consists in a clearly-defined line. The drawing or writing looks better on the stone than impressions from it even on the finest paper. This he ascribes partly to the colour of the stone, which softens the whole by a half tint; and renders the drawing more delicate and pleasing to the eye. An

impression taken on yellowish stone-like paper, greatly resembles the original drawn on the stone. The reason, he says, why impressions on white paper do not look so well is, that the colour *does not generally come equally off the whole surface.* The *possibility*, however, of effecting this, is well proved by *many perfect impressions.* Now, when it is considered that the perfect equality of colour over the whole surface of the impression constitutes the indispensable quality of even the most common letter-press printing, this recommendation of lithography, by its great friend, is not so very flattering as to give a high opinion of its excellence. The excessive price of paper in this country (four times that for which it is sold on the continent) will not allow of printing upon the *bare possibility* of having perfect impressions; and, from various hints throughout his book, Mr. S. makes it, indeed, a very remote chance of having many perfect impressions from a day's work upon stone. "If any part," says he, "of the inked surface of the stone should be rubbed with the hand with a certain degree of pressure, the subsequent application of the roller and ink will not be sufficient to restore the impression. The drawing on the stone will seem to have suffered no alteration, and appears as black as in its original state, if cleaned and washed with water; but as soon as the roller is passed over it, the rubbed places reject the ink. In some instances this defect may be removed by the application of the proper means, but in others they prove ineffectual." Again, "It often happens that, through negligence, bad colour, or unclean linen rags, the stone is soiled, or takes colour in places where it ought not so to do, especially near the margins, as these dry most quickly, and are most exposed to the touch of the greasy hands or other accidents." In any of these cases, the only effectual way of restoring the design appears to be, to prepare the stone afresh: and even then, after all the pains of rubbing down the stone to a new face, and re-drawing or re-writing the surface, there seems only a chance of its being a complete remedy for the evil, so that a new stone might be deemed the most eligible cure.

The whole process of drawing on the stone appears, from Mr. Hullmandel's treatise, beset with difficulties and dangers of the most teasing and curious description; and is continually liable to failure from, apparently, the most trifling and even ludicrous

causes: should any of the cuttings, or other loose particles, of the chalk fly on the stone, the mischief will be serious, if suffered to remain, or not removed with the greatest care: if paper be placed over part of the drawing upon which the hand might rest while engaged on the other part, the paper "takes up numberless microscopic particles of chalk from the dark touches of the drawing, and deposits them again on other parts of the stone, some of which are often intended to be bright lights; this, in the impressions, invariably produces a tint. Portions of chalk are also unavoidably lying on the face of the stone; these are taken up by the paper, to which, from the heat of the hand which is lying over it, they adhere very strongly; every time the paper is shifted, each little piece of chalk prints or marks a spot on the drawing; thus, every loose bit of chalk so adhering to the paper will print twenty and more spots."* A perspiring or moist finger touching the prepared part of the stone—blowing with the breath, coughing, or sneezing over the stone, would send small particles of spittle or saliva which would be unseen on the stone; but certain, even if wiped off ever so carefully, to produce white spots in the print. Also, "it is a safe precaution, whether the artist's hair be greasy or not, to wear a cap of some sort while drawing on the stone, as, if his hair should be scurfy, these small pellicles, imbibed with grease, will fall from the head on the stone, and form spots which do not show in the least until the drawing is printed, when they form multitudes of dark spots."† "Even a London winter atmosphere is unfavourable to lithography, as the smoke may fix in greasy particles upon the preparation of the stone, and cause a grey tint to be printed all over the impression."‡

The next subject to be treated upon will be the presses, by means of which the impressions are to be taken from the stones to the paper. In the course of experiments which have followed this invention, many kinds of lithographic presses have been devised, with various degrees of success; but these appear to have been resolved into two kinds of machinery, viz. the press in which the pressure is produced by *a scraper*;§ and the cylinder, or copper-plate press. The former, which the author denominates the *scraper-press*,§ and the *pole-press*,‖ appears that which is most

* Hullmandel, p. 89. † p. 87. ‡ p. 11. § p. 181. ‖ p. 191.

suited to the work. The scraper "is a thin piece of hard wood, about an inch thick (usually pear-tree, plane, or box). The edge with which the pressure is produced is not thicker than the twelfth part of an inch; and by the action of the press it is violently pressed against the leather of the frame under which the printing paper lies upon the stone. In some presses the scraper is passed over the whole surface of the stone; or, it rests immoveable, and the stone passes under it, so that the pressure of the scraper successively acts upon the whole surface of the paper. In this sort of scraper-press, the impression is not, therefore, produced at once, and perpendicularly, as in the letter-press; but progressively, as in copper-plate printing; with this difference, however, that in the copper-plate printing-press a cylinder rolls over the stone, and in this press the stone is drawn under the scraper. The scraper acts with a very considerable power—sometimes of three tons and more—upon the leather frame placed over the paper; and it being necessary that, notwithstanding this heavy pressure, it should slide over the leather, it is evident that a great friction must take place; and though the leather is carefully strained over the printing-frame, and rendered as slippery as possible by grease, still it cannot fail to be considerably stretched by the passing of the rubber. This stretching is communicated in some measure to the paper under it, and effects a distortion in its parts by which all the lines of the drawing, in the direction in which the rubber passes over it, become a little thicker. If the leather is of good quality, well strained in its frame, and sufficiently greased; and if the soft paper under it be not too wet, the above-mentioned distortion is very inconsiderable; and in writing or larger drawings scarcely perceivable; but in very minute drawings, or in highly-finished chalk drawings, where the space, the single lines, or points are scarcely visible, the smallest extension or distortion of the paper is sufficient to fill them entirely, by which the impression is totally spoiled." [Various preventives and remedies against these disasters are then proposed.]

Besides the effect of extending or distorting the paper, the rubber has another imperfection, viz. that of being easily injured, or even spoiled, if small hard bodies occur in the paper. In fine drawings of artists, which are commonly printed on very fine paper, this seldom happens; but in works where coarse printing paper

is used, it very frequently occurs. If, in this manner, an inequality is produced on the edge of a stone, no subsequent impression can be perfect, as a certain line will be less printed than the rest all over the stone. As soon, therefore, as such a line is observed in the impressions, the scraper must be taken out and planed afresh; and be carefully adapted to the surface of the stone.

The cylinder of a copper-plate press approximates the nearest to this principle of pressure by acting on a single line of the plate at a time, and producing the impression, as the plate passes lengthwise through the cylinders, by a progressive motion over its surface. In letter-press work the power acts perpendicularly and simultaneously upon the whole surface of the type, &c. to be printed; each part of which receives only its proportionate share of that force or pressure. This surface does not fill, perhaps, one-fourth part of the sheet, the rest being so much below as to offer no resistance to the power applied. But it is otherwise in the stone; for, by the biting in, the interstices between the print are so triflingly depressed, that the entire surface offers a resistance. It would, therefore, be necessary to produce four times greater pressure in printing from stone than from type—a state of the question which shows the impossibility of a letter-press printer entering into lithographic printing by means of his own machinery. "By the most accurate calculations, a stone plate of the size of a common folio sheet* requires a pressure of from twenty-five to thirty tons to be printed horizontally; and such a pressure nothing but a very thick stone, placed carefully upon a horizontal foundation, is able to resist."

The only machinery which has been found effectual for lithographic printing is upon the principle already described of a scraper or line pressure, the most simple of which appears to be what Mr. Senefelder calls *the upright lever, or pole press;* which, he says, "is still in use in all establishments for printing all work which requires great dispatch; but the pressure cannot be raised to more than six hundred weight, without exposing the printer to an immoderate exertion; and for that reason it is not applicable

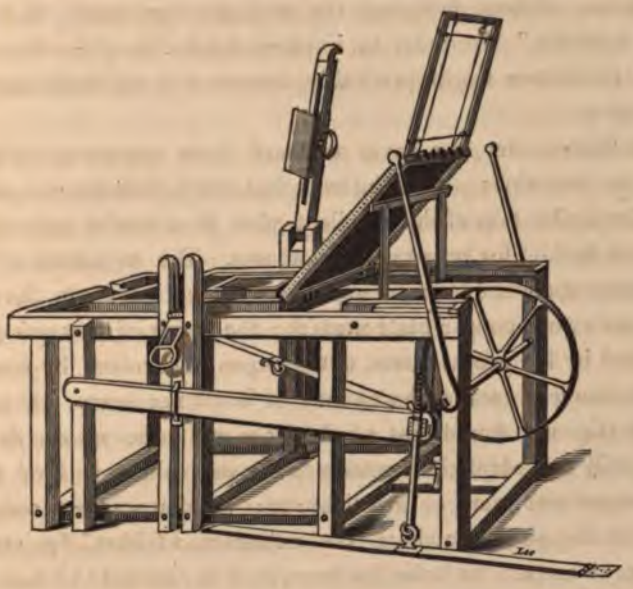
* This expression is not very clear to printers, as a sheet may be either folio, quarto, octavo, &c. without differing at all in its dimensions. Perhaps it may mean, according to the law-acceptation of the term, a sheet of foolscap or post.

to very large stones, or such as require a great pressure. For pen and ink drawings of the size of a common folio sheet,* it is excellent; and with two workmen twelve hundred impressions may be taken in one day."

In this press the pressure is produced by an upright lever from six to ten feet in length, to the under part of which the scraper is fixed; and the upper part is suspended from the spring of an elastic board. This board is fastened to a pedal, by which it can be depressed so as to act with its usual force when the scraper passes over the stone. The board fixed over the press must be so elastic as to spring at least one inch, as the scraper, in passing over the stone, describes a segment of a circle; hence the pressure at the two extremities of the stone is by no means so intense as in the middle. The stone is placed in a frame or box, and secured with wedges. This box has two frames which work on pivots or hinges, analogous to the tympans and frisket of printing-presses. The tympan, which is covered with leather, is brought under the action of the pole and scraper, which are united by a double-joint hinge, and which, when drawn to a straight line, and acted upon by the spring-board, preserve their perpendicular direction. The workman must press with his whole force against the table upon which the press stands, in order to get a firm hold, or he will scarcely be able to move the scraper. "In case of great power being required, the opposite workman, by pushing, may greatly assist the other."

Another kind of press, much used for lithography, is called the cylinder, or star-press, in which the box and stone move under the scraper which is fixed, and the impressive power is effected by a lever. But the principle upon which the impression is obtained is precisely the same as the former; and the star-press offers no recommendation of gaining even power; since, "if the pressure is not too strong, a single workman may draw the stone under the scraper; but in order to facilitate the operation, when the stones are large, and a stronger pressure is requisite, a corresponding star or cross is contrived on the other side, so that the other workman may give his assistance." And, in point of time, it is evident that a loss must be the consequence. These are the kind of presses now in general use in the lithographic establishments in France

* See preceding note.



and Germany. That they should be used here must cause a painful sensation to any *mechanic* who witnessed the operation of lithographic printing. I have given a sketch of one of these machines, which I saw at work upon a quarto post letter, single page, and which, with the labour of two men to turn *the star*, could produce about fifteen hundred per day of what two men at a common printing-press would be ashamed if they did not do four thousand? However, the finest specimens of lithography in this country are yet produced from the star-press. Other presses are described, and one in particular, working by "a cylinder of brass eight inches in diameter," which is rolled over the stone in lieu of the scraper to produce the impression; "but as this cylinder, though perfectly solid, would not produce the requisite pressure, two iron rods are attached to the pins, which pass through the table, and have cases filled with leaden or iron weights suspended to them; the space, however, seldom allows the application of more than five or six hundred weight, which, in most cases, does not produce a sufficient pressure for clear and perfect impressions. These presses would be greatly improved by being raised a little higher to gain more space underneath: or if the levers could be made to pass through the floor of the room, by which means space enough might be obtained to add a weight of two tons-and-a-half,

or more, without fatiguing the workman too much in turning the cylinder." In order to improve upon this press the Bavarian mechanics might profitably inspect our old-fashioned linen mangles.

In this country, we have, as usual, been *improving* upon the foreign inventions. Mr. Ruthven has made lithographic presses by the application of the excellent plan of powerful pressure invented by him for type-printing-presses. The movement of, and pressure upon, the stone, is gained by two cylinders, in the same manner as our copper-plate presses; the power of pressure is regulated by his patent levers, acting upon the rollers by bringing them nearer to each other, as may be found necessary. However, in practice it is found that a cylinder is not sufficient, or effective, as it will not adapt the pressure to the inequalities of level which all stones are more or less liable to; wooden scrapers only will answer for good drawings, the cylinders, at best, for circular letters or maps. Still the Ruthven lever is retained to bring down the scraper, by which means the work has been rendered comparatively easy. Mr. Colby, of Shacklewell, has also invented a press for the same purpose, of great power, by very simple means, but he retains the cylindrical pressure.

The author has reserved to the latter part of his work his observations and detail concerning "*the transfer and tracing manner.*" —"This manner," he says, "is peculiar to the chemical printing; and I am strongly inclined to believe that it is the principal and most important part of my discovery. In order to multiply copies of your ideas, by printing, it is no longer necessary to learn to write in an inverted way; but every person who, with common ink, can write on paper, may do the same with chemical ink; and by the transfer of his writing to the stone it can be multiplied *ad infinitum*. At Munich, at Paris, and at St. Petersburgh, this manner is already used in the government offices. All resolutions, edicts, orders, &c. agreed to at the cabinet meetings, are written down on paper, by the secretary, with chemical ink; and in the space of an hour fifty impressions may be had. For circulars, and, in general, all such orders of government as must be rapidly distributed, an invention like this is of the utmost consequence; and I am convinced that before ten years shall elapse, all the European governments will be possessed of a lithographical estab-

lishment for transferring writing to the stone. In time of war this method is of the greatest use for the general staff of the army: it supplies entirely the want of a field printing-office; and admits of greater despatch and secresy. The commanding officer may write his orders with his own hand; and in his presence a number of impressions may be taken from them by a person who can neither write nor read. In commerce and trade, the transfer manner will, ere long, be generally introduced, especially in great commercial houses, where it often happens that a quick and accurate multiplication of price-lists, letters, and accounts, is of the utmost importance."

I agree with most of what is here stated respecting the utility of the transfer and tracing part of lithography. The Quartermaster-general's office at Whitehall has, for some years, had a lithographic establishment attached to it; and during the late war on the continent, our army was provided with the apparatus for the purpose of issuing orders, and communicating to the officers sketches of the plan of operations.

The liquid ink for writing on paper is made with gum-lac dissolved in lye of pure soda, with a little soap; and coloured with lamp-black. The chemical ink described by Senefelder for the purpose of transfer, is somewhat different from that used for writing or drawing immediately on the stone. It is formed of

Shell-lac	3 parts
Wax	1
Tallow	6
Mastic	5
Soap	4
Lamp-black	1

In a quarto volume of 342 pages, wholly occupied in describing the processes and materials of this one art, much interesting matter must be found which it would not have been possible to have given, in a specific manner, in the limits here set. The endeavour has, therefore, been to confine this abridgment to such particulars as will be found most valuable to those for whose peculiar use this work is designed. Even where any detail of the process, or description of the ingredients used, has been introduced, it has only been with a view of more clearly defining the general

method. No one must, therefore, expect to become a master of the art of lithography from what is here presented. The "Manual of Lithography," translated from the French, by Mr. Hullmandel, as well as his subsequent work, "The Art of Drawing on Stone," gives the whole processes, failures, and remedies, more in detail; but these works only confirm my opinions already freely given; and will no doubt convince any reader that "those who really wish to study lithography, must be armed with courage and patience, and prepare themselves to exercise more than one art; it is true, that black, varnish, and printing-ink are to be found in the shops, but none of these are proper for lithography. All the materials necessary for this art cannot be employed in the state in which they are bought, some previous manipulation being always necessary. This is a natural consequence of the mystery which has hitherto enveloped lithography, and which has until now hindered the Trade from furnishing the necessary ingredients. A lithographer is thus obliged to become stone-mason, carpenter, shoe-maker, &c., and to prepare his own black, his varnish, and his ink, for nothing is indifferent in lithography; all must be done with care and intelligence; and often those things which, in their manipulation, appear unimportant, are, in the end, of the utmost consequence."*

The art appears to admit of being applied to a variety of purposes; as, imitations of ink-drawings, either by lines or dots; etchings of engravings; chalk; wood-cuts, and aqua-tinta. The style, however, which has a decided superiority, is that of chalk, as no copper-plate engravings can give so perfect an imitation of original pencil, or crayon drawings. For all scenery, and subjects from nature, it offers also peculiar advantages: the original artist drawing his work upon the same surface from which it is to be transferred to the paper in any number of impressions required, it will exhibit throughout all the freedom and spirit of his pencil without losing by the transfer of the engraver to wax and copper; only, he must either draw in reverse, or the print will be in reverse of the original. However, from the natural tendency of the stone to imbibe the lithographic ink, it is impossible to obtain very fine lines, or delicate drawings, which might not be executed with more ease by etching on copper. Such draw-

* Hullmandel, p. 4.

ings may, indeed, be produced by *engraving* upon stone; but as it requires almost as much practice as engraving upon copper, the chief advantage of lithography to the fine arts, viz. that of enabling an artist to execute his own drawings, is lost. The great bulk and weight of the stones are also a disadvantage which must ever tend to preclude a person from laying by the inscribed stones, as can be done so conveniently with engravings on copper plates.

Transfers upon stones, however, with regard to writing, are extremely useful; and even the transfer of prints from copper-plate has been effected by Mr. Hullmandel with surprising success. It appears that lithography has been chiefly esteemed, both at Paris and Munich, for its application to chalk drawings, excepting its acknowledged utility in the transfer of writings.

Mr. Raucourt, as translated by Mr. Hullmandel, says,

"The extreme facility with which drawings are made upon stone, and their being, in fact, original, give a great advantage to lithography over engraving; but, on the other hand, it must be confessed that, in point of beauty and perfection, nothing has been hitherto produced to be compared with fine line-engraving" [p. 128]. However, in the mezzotinto style, drawings on stone appear capable of entering into competition with any engravings of the same description, upon copper. The work above-mentioned of Mr. Hullmandel "Art of Drawing on Stone" exhibits fine specimens, particularly a head of Rembrandt, and a landscape; and the lithographic works published by Mr. Ackermann, drawn by Mr. Hullmandel, as also by Messrs. Ward, Nicholson, Westall, Harding, &c. show what degree of perfection this new art may be capable of attaining, when fostered by British encouragement.

Various tints may be produced by using two or more stones, which, being covered with greasy composition, the lights are scraped out in the places where they are intended to appear on paper; and the print being brought on the stone in its exact place produces the effect of a drawing on coloured paper touched with white. These drawings may be printed with a third stone, to give more effect to fore-ground. Imitations of wood-cuts are produced by covering the stone with lithographic ink, and scraping out the intended lights; and as the finer touches may be added with a hair pencil, prints far superior to wood-cuts may be ob-

tained. But the chief advantage of wood-cuts, viz. printing them along with the letter-press, is not attainable.

Engraving upon stone is performed by polishing the stone, and covering it with a thin coating of gum and black. The parts of the drawing must then be scraped out; and when finished they will of course appear white instead of black. The thicker lines, as in copper, must be cut somewhat deeper than the others, and when the drawing is complete the whole is rubbed with linseed-oil, which being resisted by the coating of gum, only touches the stone where that is scraped away. The gum is then washed off, and the print obtained as in the other style of printing. The imitations of aqua-tinta are produced by several stones coinciding with each other, and producing a succession of flat tints, as before-described. Drawings may also be done by mixing ink with chalk, and adding flat tints.*

In going thus far into the detail of this new mode of printing, I have been actuated by two motives:—first, that of giving general information relative to an art claiming some affinity to our own; and secondly, that of showing how far lithography will either interfere with, or be auxiliary to typography. Whether I have succeeded in the former motive it will be for others to decide; on the latter, I may venture an opinion, that it will be of no effect either the one way or the other.

I had, at one time, an intention of making a temporary carriage, on which we (printers) might work stones by the power of our presses; but a careful perusal of the works above referred to, and a personal attention to the process, have convinced me of the impracticability of such a scheme; or of any union of the two arts; nor have we any thing to apprehend from the success of lithography. Circular letters, and official orders, by the advantage which the method of transfer gives, are the only instances in which it will interfere with the ordinary mode of printing, and be likely to supersede, in any respect, letter-press work; and in these even, where economy is necessary, letter-press will have the preference. In cases, also, where the beautifully clear and distinct lines produced by the engraver on copper, and the type-founder, are objects

* See Mr. Hullmandel's paper upon Lithography in the thirty-seventh volume of Transactions of the Society of Arts, which accompanied several specimens of the different styles: particularly his Views in Italy.

of attention without the aid of extraneous ornaments and flourishings, the stone-printing will not be adopted. To compose types for transferring on to stone, and thus making stone pages, will be far more expensive than stereotype, and require twenty times the room to keep store, even if it could be brought to answer in other respects, so that its adoption in such a way is totally out of question; and few authors will write their works upon prepared paper for transferring them to stone, for the sake of exhibiting to their friends and posterity fac-similes of their manner of writing for the press.

As to any advantage gained by the public, on the side of expense, I shall show that to be very equivocal. The list of "prices at the Lithographic Press, No. 8 Pickett-street, Temple-Bar, in April 1822, is as follows:—

> "*Lithography Circulars* 4*s. per* 100 *pages, ex. paper.*
> *Ditto, Plans of Estates* 8*s. to* 21*s. per* 100, *ex. paper.*
> *Writing charged when less than* 300 *copies from* 1*s.* 6*d. to per page.*
> *Transfer ink* 1*s. per bottle—Transfer paper* 1*s. per sheet.*
> "N. B. Even hundreds always charged."

Now the question is, what would be charged by a letter-press printer for the same.

Letter-Press.		Lithography.	
250 ex. paper	£0 8 0	250 as 300 . . .	12 0
		Writing . . .	1 6=0 13 6
500	0 11 0	500	1 0 0
750	0 14 0	750 as 800	1 12 0
1000	0 17 0	1000	2 0 0

And if the employer wishes to display his own hand-writing, there must be added, one shilling for the bottle of ink, and one shilling more for the sheet of transfer paper.

The side on which the advantage lies, with regard to plans of estates, is rather more difficult to be shown, because it is not easy to estimate the average expense of engraving. But it is certain that the plan must be drawn upon either the transfer paper or the stone; and in either case the artist must be paid. Then the printing would be from eight to twenty-one shillings per hundred, exclusive of paper. Now a plate, quarto size, may be worked for about three shillings per hundred; so that it does not appear, from

these statements, that the public are likely to be advantaged by lithography on the score of price.

The commendations which I have just given to this art, might induce an opinion that it would very materially interfere with copper-plate engraving and printing; but there is one circumstance which will effectually protect those professions; namely, the slow, and consequently expensive, process of stone-printing; this, in long numbers, will counterbalance all the difference in value between engraving on copper and drawing on stone. A small quarto head will cost at least twelve shillings per hundred working. Thus, where very limited numbers are sufficient, all the advantages of the first artist's drawing being transferred to the paper at a less expense than its copy can be engraven on metal, may so far be obtained: but when the long numbers necessary for the usual impression of a work are required, copper-plate will have the decided advantage.

DECORATIVE PRINTING.

CHAPTER XVIII.

Revival by Mr. Savage—The Chiaro Oscuro—Colours by suites of blocks—Manner of Papillon—Mode of Printing—Paper Hangings—Chinese—Initial letter B of the Mentz Bible—New Mode of producing such a Specimen—Mr. Savage's Specimens—Requisites of the Artist—CUI BONO—Calculation of Cost—Failure of the Chef-d'œuvre—Pleasing relief on referring to the first principle of the art of Printing—Branston's Cave of Despair, reversed—India Paper.

THIS subject of fancy has been lately revived by the work of Mr. William Savage, a printer of acknowledged ingenuity and talent; but whose labours in this performance have been applied, I fear, more towards the honour of the art, than to his own emolument.

The principal view of Mr. Savage in compiling this work, appears to have been, to draw the attention of the British typographer to an art attempted many years ago, and which, most probably, was not then persevered in for the very same reason that will render futile the attempt to revive it in the present day, namely, its total inutility.

Mr. Savage divides the subject into two kinds of specimens; namely:—First, that of prints worked with different gradations of the same colour, which produces the effect of what is termed chiaro oscuro, or cameo. The first practiser of this method has been generally supposed to be Ugo da Carpa, an Italian engraver of the sixteenth century, who, with other contemporaries, produced the effect of chiaro oscuro drawings, by means of two, three, or more, blocks of wood printed with different gradations of the shade of the same colour, upon the same paper.*

Secondly, the printing a picture by suites of blocks, in various colours, "so as to give fac-similes of the productions of different masters, at a small expense, to serve as studies, or for the deco-

* Ottley, vol. i. p. 34. *n.*

ration of rooms, where, if framed and glazed, the eye should not be able to distinguish them from drawings."*

It appears to me, that Mr. Savage may have first taken up his idea from the work I have before mentioned, viz. that of *Papillon*;† upon the appearance of the first part of Mr. S.'s work, I was instantly struck with the resemblance of his first specimen of chiaro oscuro, to one of Papillon's executed precisely on the same principle.

To produce these effects, as many blocks, designed and fitted *en suite*, are employed, as are the tints or colours which the artist intends to produce. The first of these is termed the *blotch block*, which is used to print the first or lightest tint, out of which the extreme lights, or whites, only are cut, or excavated; the second block prints the next tint, and so on until the whole design is completed; the number of blocks being determined by the degree of finish intended to be given to the print.

In forming prints of multifarious colours, a similar routine takes place, the various blocks being traced from, and all matched to, each other, inked with the requisite colours in proper succession, and united and blended by the most skilful and patient workmanship, and by means of those *sheet* anchors of pressmanship called points, three, or even four of which are fixed (by what a printer calls *paste-points*) upon the tympans, so as to act upon the margins of the print: thus, every block of which the suite consists will require separate beating, pointing, and pulling.‡

It appears, both from Papillon and Savage, that this mode of ornamental printing was practised by the earlier typographers:

* Savage. † See pp. 18. 623.

‡ Perhaps it may be expected that I should instance, in the course of this chapter, the beautiful paper hangings for rooms, printed in various colours, from blocks, *en suite*, and sheets in series, first produced in Italy and France, and now *improved* in England. The principle is certainly similar, but as the purpose is different, and colours laid on in relief, any thing like a classification or comparison of the two species of printing would not be just. But here the sad rogues, the Chinese, are before us again.—"D—— the ancients," said the Irishman, "they are always *staleing* one's good thoughts." I happen to have a set of silk hangings, for a room, with figures printed in colours, and several portions, or sheets, to unite and form for a subject within a border, exactly upon the principle now under consideration, but falling to pieces from age.

To face page vii.

they both affirm the large ornamental capital letters of the Mentz Psalter (Faust and Schoeffer, 1457) as well as the Bible and other books, to have been *printed* in *colours* with *suites* of *blocks*. The former asserting that there were three colours used, viz. red, blue, and purple, the latter contending for two only, viz. blue and red. I have had no opportunity of examining any one of these treasures of typography. The letter B at the beginning of the volume has been, as I have before stated [p. 46], copied in fac-simile by several authors, and described by others; and I mean to give it in those two colours, both as an exemplification of the principle, and for the purpose of showing that it may be produced by a process certainly never yet called in aid of such a purpose, but which would save much time and expense of engraving suites of blocks; namely, stereotype; and, having one block only engraved, the rest may be effected by merely such hands as are on the ordinary establishment of a printing-office.

Mr. Savage, who examined a fine copy of this Psalter with the most anxious curiosity, says, "he could not help admiring the great accuracy with which the workmanship was executed, in inserting a large capital letter into the surrounding ornamental part, where the exact shape is bounded by a fine line of a different colour, so near to each other, as to be separated by a space not more than the thickness of writing paper, and uniformly true in every instance;" but the general appearance of the work is heightened in beauty, by a more bright and delicate tint of each of those colours in other places written or painted in by hand, as well as some other emendations of even the black ink.

"It is a curious fact," says Mr. Savage "that under Fust and Gutenberg the process should be carried nearly to perfection; for some of the works they printed, both in the quality of the ink, and in the workmanship, are so excellent, that it would require all the skill of our best printers, even at the present day, to surpass them in all respects: and I do not hesitate to say, that in a few years after, the printers were actually superior to us in the use of red ink, both as to colour, and as to the inserting of a great number of single capital letters in their proper places in a sheet, with a degree of accuracy, and sharpness of impression, that I have never seen equalled in modern workmanship."—pp. 6, 7.

Mr. Savage, in pursuing his plan of fully exemplifying the effect

of ornamental printing, has given imitations of drawings in sæpia and Indian ink, in, from three blocks, increasing to nine—several head-pieces printed as cameos in different tints of the same colours; in heraldry, the arms of Earl Spencer in heraldic colours; in imitation of coloured drawings, a combination of from two to twenty-nine blocks; three specimens in natural history, and three in sculpture; and others of various descriptions. The minutiæ of the process is explained, first, by tables of the coloured inks used in these prints, with definitions of their properties and necessary combinations, and general rules and cautions for the manual operation at the press: this, after the grand point, included in one technical term, the *making-ready*, is effected, is little more than would be dictated by the judgment of any clever, experienced, artist-like pressman. The operations of this method of printing, the various colours used, and the succession of each block, to produce the required effect, appear fully explained in a "Succinct Description of the Illustrations," to which I must refer the curious inquirer: yet, still much, very much, must evidently be left to the taste and judgment of the printer who has leisure to make such experiments. No rule can be laid down for the exact order in which the various blocks of a suite are to be taken—the printer must not only be an artist in the limited acceptation of the term, but in the full extent of the term as applicable to the fine arts of designing, painting, and drawing, or he can never expect to produce the effect of either. It appears necessary, in the first place, to consider that the style of the drawing must be suited to the intended process: next to "analyze the drawing, for the purpose of ascertaining how many blocks it will require, and what parts of it will come into each, and to determine which block shall be first engraved"—all this will require the united operations of the designer, engraver, and printer; and, in some of his pictures, Mr. Savage appears to have had the assistance of the two first-named artists, in an eminent degree. From his account of the difficulties he had to cope with, it is very plain that the practiser of this fancy must have no other business to divide his attention: the whole of the subjects, with one exception, were worked by himself, or his own family.

I think it unnecessary to proceed further with this subject, till

some little consideration be given to that important question, by the solution of which the more or less general adoption of every art and science must be regulated; namely, CUI BONO? In posting-bills, lottery-puffs, titles of books, the printing in colours will be ornamental and decorative, but rather expensive; but for producing pictorial subjects "to serve as studies, or for the decorations of rooms, framed and glazed, not to be distinguished from drawings," the *failure* is complete. Every head piece is managed by, first, working the type as a single leaf, then by working three times more, for the three tints of the cameos. The picture illustrative of Collins's "Ode on Mercy," which was intended as the *chef d'œuvre* of this decorative printing, is produced from twenty-nine blocks! thirty colours and tints to work one quarto leaf twenty-nine times over!! now, let the mind run over the probable cost to employ a journeyman capable of such work, and guess if something like the following may not be given as the probable result:—

29 blocks, making-ready, preparing colour, beating, and
4 | pulling, at least four times the time of the operations of
116 | a forme of the work, quarto
4 pages in a forme
464 times the cost of printing a page of fine type-work, exclusive of the expense of the designer, engraver, and box-wood. If for studies or pictures this expense could be borne, it is very plain that in book-decorations it is not likely to answer—if 500 facsimiles were wanted of the picture of Mercy, print it in outline, and the first artists in the country would be glad to colour them up to pattern for one fourth of the money, and produce something like a finished specimen.

I think this picture-print of "Mercy" a monstrous abortion—it is horrible—its only merit is in the patience and difficulty with which it was gestated and brought to parturition. I could wish, as Dr. Johnson said of the lady's piece of difficult music, it had been *impossible:* some other specimens in colours, where so much has not been aimed at, are so much the better; the less that has been attempted, the less is the failure.

In going regularly through the account of the Illustrations, we in time arrive at the finale of specimens of the printing art of Mr. Savage; and as if the climax of disappointment were still in store,

after the failure of "Mercy" the list concludes with the "Cavern of Despair;" but what a surprise! what an unexpected reverse and relief to the sickened sensation, does this "Cavern of Despair" really prove! Is it accident or design? Is it meant as *stage effect?* In this picture the mind is refreshed by, and at last rests delighted upon, every excellence that wood-engraving and type-printing ever did or ever will effect. I cannot conceive superiority possible; to attempt any description of it would be folly, except saying, that it is in the true, legitimate mode of printing, one colour, a fine black: take all the other "Illustrations" away, cut out the whole portion of "Decorative Printing," and give me the remainder of the book, with the "Cavern of Despair" designed by THURSTON, and engraved by BRANSTON, and I will preserve it as one of the choicest specimens of typographic skill.

One specimen deserves to be mentioned with commendation for its splendid effect. This is described as an Ornamental Letter B, drawn and engraved by Branston; and executed to show that large ornamented letters might be introduced into books, printed at the type-press in colours, or with different shades of the same colour as cameos; and also to show the introduction of gold by means of the printing-press. This specimen has seven blocks, the lights are printed in gold—it would be rather a dear ornament, since it appears, that, in addition to the number of blocks, the peculiar skill of two typographic artists, besides Mr. Savage, was required to effect it.

Mr. Savage's work, upon the more ordinary operations of printing, contains a great deal of curious and interesting matter. His observations, as well as the extracts taken from Papillon, on the various woods proper for engravings, will be found valuable to the practisers of that art.

There is also, in this work, a valuable paper by Mr. Farraday, of the Royal Institution of Great Britain, entitled "Chemical Analysis of French plate Paper, India yellow Paper, and India white Paper," the chemical details of which are well worth the attention of paper manufacturers. and the subsequent observations particularly interesting to those printers who are curious in the production of good impressions from wood engravings.

"I have no doubt myself" says Mr. Farraday, "that the supe-

riority of the India paper is owing to the peculiar nature of the fibre used in its formation, and not to any particular process in the manufacture of it, or to the addition of any other substance. Indeed, as far as regards the making of it, I think it is inferior to our own; but it has a singular degree of ductility, even in the dry state, which far surpasses any thing I have observed in European paper: the slightest impression of the nail, or other hard body; the mark of a twist, or any form given to it by pressure, remain very perfectly after the force which produced them is removed; and by simple extention of the paper, or other means, these may be removed much more readily and completely than they can from a piece of English paper. Now, I presume that it is to this property, and which belongs to the peculiar fibre of which the paper is composed, that it owes its superiority: it permits the paper to mould itself according to all the inequalities of the surface against which it is pressed; and, consequently, entering and filling up more accurately the lines upon the copper-plate, it receives the ink from every place where it has been deposited, in a more perfect manner than any paper deficient in this quality can do. I endeavoured to convince myself of this, by scratching and cutting up a copper-plate with a steel point, and then covering one half with folded India paper, and the other with French plate paper, submitting the surface thus covered to pressure: I found, on removing it, that though both papers had been in precisely the same circumstances, there was an essential difference in the impressed form received by them: on the French plate paper I could only trace the elevations formed by the deeper lines on the the copper-plate, but on the India paper every mark could be observed which the copper that it covered had received."

Mr. Farraday has confined his experiment and observations to the superiority of India paper for printing from copper-plates, but every reason which he has given applies with equal force to printing from wood. Many of the engravings in this work I would gladly have worked with the type, or as the next best mode, upon the same paper, but separate from the type; not finding this to equal my wishes I tried other samples said to be made of particular fabric suitable to such a purpose, and also a paper made from pure flax, so that no particle of cotton could have entered into the pulp; but they were all equally unsuccessful in competition with the

India paper. I found it impossible to give at once the same intensity of colour to the black shades from the plane surface of the block, and the delicacy of the lighter shades from the engraved part, without, in the first instance, using such a body of ink, and considerable power of impression, as would fill up all the finer parts; and in the latter, by using the ink so sparingly and so light an impression as would not leave sufficient colour for the black parts. The India paper, on the contrary, by the flexibility of texture, and absorbent and congenial quality for fixing the ink, would take every light and shade with much less colour and pressure, and what is of infinite importance in printing, allow the ink to set, or dry, in less time than any other paper. A remarkable instance will be seen in this work in the print of Cogger's Press, which has an extent of black ground, with clearness of the fine lines, and absence of all appearance of ink or oil on the reverse, that never could have been effected if European paper had been used. In fact, it went further, for owing to the qualities united of the paper and the ink (to say nothing of the workmanship) immediately as it was worked no ordinary pressure would cause it to set-off—and on the second day after, I had several copies hot-pressed to try the effect, without finding the colour either to spread or fade.

APPENDIX.

IN page 19, Introduction, I have described the method of printing, which I understand to be practised by the Chinese: since that part was printed, I have been enabled, by the kindness of Mr. Bowyer Nichols, to present a specimen of Chinese printing, which will be, doubtless, interesting, as effected by a process differing so materially from European practice.

My friend has lent me a Chinese engraved *block* (that being the term generally used), although I would rather call it a wooden leaf, its thickness not exceeding $\frac{5}{8}$ of an inch, and being engraved on both sides; their mode of taking impressions, as already described, admitting of this, without damage to the underside; and by which is evidently intended a saving both in material, and room in which to store the work; this effectually prevents me from taking an impression by our mode from the thing itself, without great danger of splitting it, and other damage; and the more so, as it is much warped: I have, however, contrived the means of producing almost a complete fac-simile of this curiosity.

The original came out of the collection of the Rev. Dr. Lert, whose account of it is as follows:—

"The title is '*Tsi Tsan Noun Poun—Sing Song Play Book*'—23rd page.* It is a song concerning a gentleman who, soon after his marriage, left his lady to serve the emperor of China in his army. Being falsely accused of treachery he was condemned to die; but his father-in-law proved the accuser to be the traitor, and he was executed."

The block has evidently been very much used; its whole appearance being that of an engraving from which many thousands of impressions have been printed; and that it has been printed from, there is further evidence, from the quantity of dried ink adhering to the sides of the block, which are angular.

* The characters appear to me to be the 23rd and 24th pages. *H.*

In the library at the India House, I have seen several specimens of the Chinese printing-blocks, in various stages of the process: some having the paper with the characters traced, ready glued to the board; some engraved, but never printed from; others showing signs, like this now before us, of much wear; and one very large block, of a picture in outline. But these are only engraved on one side, and have a dovetail at each end to slide into larger blocks by which they are held firm for the workman's use. Several of their engraving and printing tools are also in the same library, the appearance of which confirms the account here given of their method of workmanship.

I have also inspected several Chinese books—and have worked my specimen as nearly like them as I could—as badly as possible—still my apprehension is, that if ever my work be admitted into the Celestial Empire, the Mandarins will not guess it to be an impression (or as nearly so as possible) from their own engraving.

Stereotype Foundry—p. 871.

Since that article was written, and the view engraved, I have had occasion to remove that foundry, and erect another upon a larger scale. The only part of the apparatus essentially different from that here described, is the mode of lowering the melting-pot into the pit. This is by means of an apparatus containing a rack and pinion, attached to the crane, in lieu of the rope and shackles, by which the pot is lowered and kept at any chosen position; as also a method of fixing and unfixing the claws without the process of unscrewing.

To follow p. 920.

Devices of early English Printers.—No. I.

Devices of early English Printers.—No. II.

Devices of early English Printers.—No. III.

Devices of early English Printers.—No. IV.

MONOGRAMS AND DEVICES OF EARLY ENGLISH PRINTERS.

(From the Rev. T. H. Horne's Introduction to Bibliography—by permission.)

Explanation of the opposite Engraving—No. 1.

1, 2, and 3, Are the marks affixed by Caxton to his publications. Of Caxton, see pp. 90—103.

4, 5, and 6. Marks used by Wynkyn de Worde; who, being Caxton's successor, adopted his devices, with some slight alterations. Of him, see pp. 107, &c.

7. A device of Pynson.—See pp. 111 and 141.

8. A device of J. Notary—111.

Engraving—No. 2.

1. The mark of William Faques [of whom see p. 112]. The sentence in this device, *Melius est modicum justo super divitias peccatorum multas*, is taken, with some variation, from the book of Proverbs, ch. xvi. v. 8. And that following, *Melior est patiens viro forti, et qui dominat*, is from Ecclesiastes, ch. vii. v. 8. (vulgate version).

2. The device of John Skot or Scott.—See p. 112.

3. The mark of Thomas Godfray—113.

4. The device of John Rastall—113 and 142.

5. The mark of Robert Wyer—114.

6. The elegant device of Richard Grafton—117, 148, 155, 158, 164. His motto—*Receive the ingrafted word* (Epist. St. James, ch. i. v. 21)—has a quaint allusion to his name.

7. The device of John Reynes—115.

8. The mark of Laurence Andrew—114.

Engraving—No. 3.

1. The device of John Byddle.—See p. 116.
2. - - - of Edward Whitchurch—118.
3. - - - of Thomas Petit—118.
4. - - - of Reynold Wolfe—121.
5. - - - of John Day—122.
6. - - - of William Serres—124 and 164.
7. - - - of Richard Jugge—124.
8. - - - of Hugh Singleton—125.

ENGRAVING—No. 4.

1. The device of Gaulter Lynn—See p. 126.
2. - - - of John Cawood—127 and 165.
3. - - - of Richard Tottel—128.
4. - - - of Richard Jones—133.
5. - - - of William Middleton—120.
6. - - - of Thomas Purfoot—132.
7. - - - of John Wolfe, City Printer—136.
8. - - - of John Siberch—190.

The display of monograms and devices of early printers is continued, to a considerable extent, both of English and foreign printers, by Mr. Horne, to whom I must now refer my readers who may be curious in this branch of typography. The specimens I have given will be sufficient to excite their curiosity, which in his work will find a rich treat.

The following represents the device affixed to the celebrated Psalter of Mayence.—See pp. 46. 913.

SCALE OF PRIMAS.

No. of Sheet.	Signatures.	FOLIO. 1st and 2nd.	FOLIO. 3rd and 4th.	QUARTO. 1st and 2nd.	QUARTO. 3rd and 4th.	OCTAVO.	TWELVES. (Half-Sheets.)	TWELVES. (Sheets.)	Signatures.	No. of Sheet.
			181		361		1			
1	B	1	185	1	369	1	13	1	B	1
2	C	5	189	9	377	17	25	25	C	2
3	D	9	193	17	385	33	37	49	D	3
4	E	13	197	25	393	49	49	73	E	4
5	F	17	201	33	401	65	61	97	F	5
6	G	21	205	41	409	81	73	121	G	6
7	H	25	209	49	417	97	85	145	H	7
8	I	29	213	57	425	113	97	169	I	8
9	K	33	217	65	433	129	109	193	K	9
10	L	37	221	73	441	145	121	217	L	10
11	M	41	225	81	449	161	133	241	M	11
12	N	45	229	89	457	177	145	265	N	12
13	O	49	233	97	465	193	157	289	O	13
14	P	53	237	105	473	209	169	313	P	14
15	Q	57	241	113	481	225	181	337	Q	15
16	R	61	245	121	489	241	193	361	R	16
17	S	65	249	129	497	257	205	385	S	17
18	T	69	253	137	505	273	217	409	T	18
19	U	73	257	145	513	289	229	433	U	19
20	X	77	261	153	521	305	241	457	X	20
21	Y	81	265	161	529	321	253	481	Y	21
22	Z	85	269	169	537	337	265	505	Z	22
23	2 A	89	273	177	545	353	277	EIGHTEENS	2A	23
24	B	93	277	185	553	369	289		B	24
25	C	97	281	193	561	385	301		C	25
26	D	101	285	201	569	401	313	BCD 1	D	26
27	E	105	289	209	577	417	325		E	27
28	F	109	293	217	585	433	337		F	28
29	G	113	297	225	593	449	349	EFG 37	G	29
30	H	117	301	233	601	465	361		H	30
31	I	121	305	241	609	481	373	HIK 73	I	31
32	K	125	309	249	617	497	385		K	32
33	L	129	313	257	625	513	397		L	33
34	M	133	317	265	633	529	409	LMN 109	M	34
35	N	137	321	273	641	545	421		N	35
36	O	141	325	281	649	561	433	OPQ 145	O	36
37	P	145	329	289	657	577	445		P	37
38	Q	149	333	297	665	593	457		Q	38
39	R	153	337	305	673	609	469	RST 181	R	39
40	S	157	341	313	681	625	481		S	40
41	T	161	345	321	689	641	493	UXY 217	T	41
42	U	165	349	329	697	657	505		U	42
43	X	169	353	337	705	673	517		X	43
44	Y	173	357	345	713	689	529	Z 253	Y	44
45	Z	177	361	353	721	705	541		Z	45

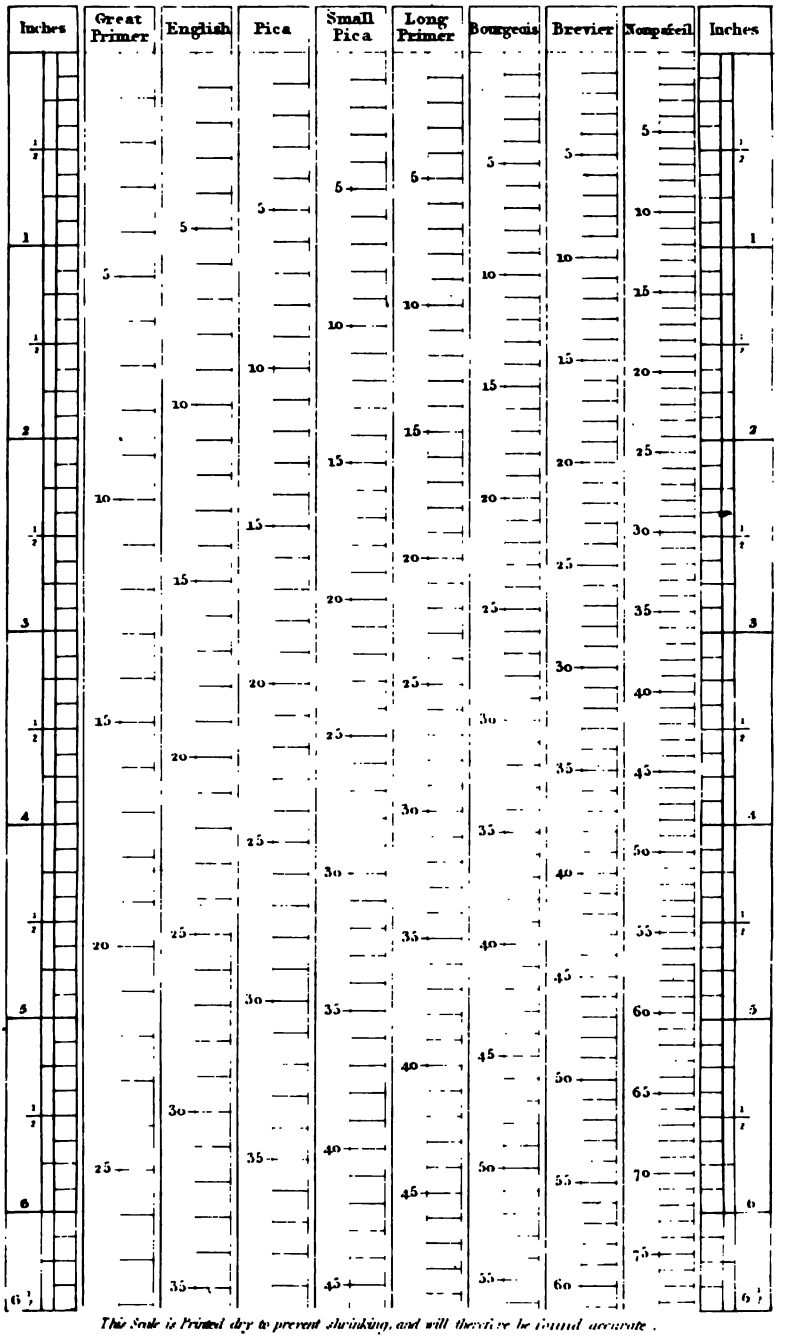
The Primas of Octavo Half-Sheets are the same as those of Quarto Sheets.

TYPOGRAPHIC SCALE by which Compositors Work is measured.

ENGLISH.	PICA.	SM. PICA.	LONG PRIMER.	BOUR-GEOIS.	BREVIER.	MINION.	NONPA-REIL.
1m	1m	1m	1m	1m	1m	1m	1m
2m	2m	2m	2m	2m	2m	2m	2m
3m	3m	3m	3m	3m	3m	3m	3m
4m	4m	4m	4m	4m	4m	4m	4m
5m	5m	5m	5m	5m	5m	5m	5m
6m	6m	6m	6m	6m	6m	6m	6m
7m	7m	7m	7m	7m	7m	7m	7m
8m	8m	8m	8m	8m	8m	8m	8m
9m	9m	9m	9m	9m	9m	9m	9m
10m	10m	10m	10m	10m	10m	10m	10m
11m	11m	11m	11m	11m	11m	11m	11m
12m	12m	12m	12m	12m	12m	12m	12m
13m	13m	13m	13m	13m	13m	13m	13m
14m	14m	14m	14m	14m	14m	14m	14m
15m	15m	15m	15m	15m	15m	15m	15m
16m	16m	16m	16m	16m	16m	16m	16m
17m	17m	17m	17m	17m	17m	17m	17m
18m	18m	18m	18m	18m	18m	18m	18m
19m	19m	19m	19m	19m	19m	19m	19m
20m	20m	20m	20m	20m	20m	20m	20m
21m	21m	21m	21m	21m	21m	21m	21m
22m	22m	22m	22m	22m	22m	22m	22m
23m	23m	23m	23m	23m	23m	23m	23m
24m	24m	24m	24m	24m	24m	24m	24m
25m	25m	25m	25m	25m	25m	25m	25m
26m	26m	26m	26m	26m	26m	26m	26m
27m	27m	27m	27m	27m	27m	27m	27m
28m	28m	28m	28m	28m	28m	28m	28m
29m	29m	29m	29m	29m	29m	29m	29m
30m	30m	30m	30m	30m	30m	30m	30m
31m	31m	31m	31m	31m	31m	31m	31m
32m	32m	32m	32m	32m	32m	32m	32m
33m	33m	33m	33m	33m	33m	33m	33m
34m	34m	34m	34m	34m	34m	34m	34m
35m	35m	35m	35m	35m	35m	35m	35m
36m	36m	36m	36m	36m	36m	36m	36m
				37m	37m	37m	37m
					38m	38m	38m
					39m	39m	39m
					40m	40m	40m
					41m	41m	41m
					42m	42m	42m
					43m	43m	43m
					44m	44m	44m
					45m	45m	45m
					46m	46m	46m
					47m	47m	47m
					48m	48m	48m
					49m	49m	49m
					50m	50m	50m
					51m	51m	51m
					52m	52m	52m
					53m	53m	53m
					54m	54m	54m
					55m	55m	55m
					56m	56m	56m
					57m	57m	57m
					58m	58m	58m
					59m	59m	59m
					60m	60m	60m
					61m	61m	61m
					62m	62m	62m
						63m	63m
						64m	64m
						65m	65m
						66m	66m
						67m	67m
						68m	68m
							69m
							70m
							71m
							72m
							73m
							74m
							75m
							76m
							77m
							78m
							79m
							80m

TYPOGRAPHIA.

Scale of Sizes from Great Primer to Nonpareil inclusive.



This Scale is Printed dry to prevent shrinking, and will therefore be found accurate.

Baldwin, Cradock & Joy.

Calculations of the NUMBER of LETTERS contained in

OCTAVO.											
15	28 13440	29 13920	30 14400	31 14880	32 15360	25	48 38400	49 39200	50 40000	51 40800	52 41600
15½	29 14384	30 14880	31 15376	32 15872	33 16368	25½	49 39984	50 40800	51 41616	52 42432	53 43248
16	30 15360	31 15872	32 16384	33 16896	34 17408	26	50 41600	51 42432	52 43264	53 44096	54 44928
16½	31 16368	32 16896	33 17424	34 17952	35 18480	26½	51 43248	52 44096	53 44944	54 45792	55 46640
17	32 17408	33 17952	34 18496	35 19040	36 19584	27	52 44928	53 45792	54 46656	55 47520	56 48380
17½	33 18480	34 19040	35 19600	36 20160	37 20720	27½	53 46640	54 47520	55 48400	56 49280	57 50160
18	34 19584	35 20160	36 20736	37 21312	38 21888	28	54 48384	55 49280	56 50176	57 51072	58 51968
18½	35 20720	36 21312	37 21904	38 22496	39 23088	28½	55 50160	56 51072	57 51984	58 52896	59 53808
19	36 21888	37 22496	38 23104	39 24712	40 24320	29	56 51968	57 52896	58 53824	59 54752	60 55680
19½	37 23088	38 23712	39 24336	40 24960	41 25584	29½	57 53808	58 54752	59 55696	60 56640	61 57584
20	38 24320	39 24960	40 25600	41 26240	42 26880	30	58 55680	59 56640	60 57600	61 58560	62 59520
20½	39 25584	40 26240	41 26896	42 27552	43 28208	30½	59 57584	60 58560	61 59536	62 60512	63 61488
21	40 26880	41 27552	42 28224	43 28896	44 29568	31	60 59520	61 60512	62 61504	63 62496	64 63488
21½	41 28208	42 28896	43 29584	44 30272	45 30960	31½	61 61488	62 62496	63 63504	64 64512	65 65520
22	42 29568	43 30272	44 30976	45 31680	46 32384	32	62 63488	63 64512	64 65536	65 66560	66 67584
22½	43 30960	44 31680	45 32400	46 33120	47 33850	32½	63 65520	64 66560	65 67600	66 68640	67 69680
23	44 32384	45 33120	46 33856	47 34592	48 35328	33	64 67584	65 68640	66 69696	67 70752	68 71808
23½	45 33840	46 34592	47 35344	48 36096	49 36848	33½	65 69680	66 70752	67 71824	68 72896	69 73968
24	46 35328	47 36096	48 36864	49 37632	50 38400	34	66 71808	67 72896	68 73948	69 75072	70 76160
24½	47 36848	48 37632	49 38416	50 39200	51 39984	34½	67 73968	68 75072	69 76176	70 77280	71 78384

These TABLES contain Calculations of the Number of Letters, as cast up by the Rule in pp 778, 9. The red figures show the width and length, the black figures the number of letters in the sheet. *Ex.* Octavo $^{23\frac{1}{2}} \times {}^{47} = 35344$.

*** These pages are printed by the

APPENDIX.

a SHEET of OCTAVO, TWELVES, and EIGHTEENS.

DUODECIMO.

13	20 12480	21 13104	22 13728	23 14352	24 14976	23	40 44160	41 45264	42 46368	43 47472	44 48576
13½	21 13608	22 14256	23 14904	24 15552	25 16200	23½	41 46248	42 47376	43 48504	44 49632	45 50760
14	22 14784	23 15456	24 16128	25 16800	26 17472	24	42 48384	43 49536	44 50688	45 51840	46 52992
14½	23 16008	24 16704	25 17400	26 18096	27 18792	24½	43 50568	44 51744	45 52920	46 54096	47 55272
15	24 17280	25 18000	26 18720	27 19440	28 20160	25	44 52800	45 54000	46 55200	47 56400	48 57600
15½	25 18600	26 19344	27 20088	28 20832	29 21576	25½	45 55080	46 56304	47 57528	48 58752	49 59976
16	26 19968	27 20736	28 21504	29 22272	30 23040	26	46 57408	47 58656	48 59904	49 61152	50 62400
16½	27 21384	28 22176	29 22968	30 23760	31 24552	26½	47 59784	48 61056	49 62328	50 63600	51 64872
17	28 22848	29 23664	30 24480	31 25296	32 26112	27	48 62208	49 63504	50 64800	51 66096	52 67392
17½	29 24360	30 25200	31 26040	32 26880	33 27720	27½	49 64680	50 66000	51 67320	52 68640	53 69960
18	30 25920	31 26784	32 27648	33 28512	34 29376	28	50 67200	51 68544	52 69888	53 71232	54 72576
18½	31 27528	32 28416	33 29304	34 30192	35 31080	28½	51 69768	52 71136	53 72504	54 73872	55 75240
19	32 29184	33 30096	34 31008	35 31920	36 32832	29	52 72384	53 73776	54 75168	55 76560	56 77952
19½	33 30888	34 31824	35 32760	36 33696	37 34632	29½	53 75048	54 76464	55 77880	56 79296	57 80712
20	34 32640	35 33600	36 34560	37 35520	38 36480	30	54 77760	55 79200	56 80640	57 82080	58 83520
20½	35 34440	36 35424	37 36408	38 37392	39 38376	30½	55 80520	56 81984	57 83448	58 84912	59 86376
21	36 36288	37 37296	38 38304	39 39312	40 40320	31	56 83328	57 84816	58 86304	59 87792	60 89280
21½	37 38184	38 39216	39 40248	40 41280	41 42312	31½	57 86184	58 87696	59 89208	60 90720	61 92232
22	38 40128	39 41184	40 42240	41 43296	42 44352	32	58 89088	59 90624	60 92160	61 93696	62 95232
22½	39 42120	40 43200	41 44280	42 45360	43 46440	32½	59 92040	60 93600	61 95160	62 96720	63 98280

EIGHTEENS.

To find the Letters in a sheet of EIGHTEENS, take the measures of the Twelves, divide by 2, and add the product. *Ex.* 13 × 20 = $\left\{\begin{array}{r} {}^{2)}12480 \\ 6240 \\ \hline 18720 \end{array}\right.$

method and type mentioned in p. 603.

No. I.

PRINTING INK WORKS,

BIRMINGHAM.

ADDRESS.

HAVING availed ourselves of the friendly opportunity afforded to us by MR. HANSARD, of introducing into his Work on Typography Specimens of our Inks, we beg leave respectfully to return our sincere thanks for the very distinguished patronage we have invariably received since our commencement in the trade, and to assure our friends and the printers in general that no pains will, on our part, be spared to perfect the manufacture of an article so essential to the beauty of their works, and so desirable for the reputation of themselves and the Art of Printing generally.

In promising thus much, we are fully aware of the difficulties we have to encounter as well as those we have already overcome; and we are proud to think that our former exertions have, in a great measure, been instrumental in bringing the Art to its present state of perfection; and though much still remains to be accomplished, we trust that, by an unremitting attention, we shall ultimately succeed in completing what remains to be desired, which is the constant wish of

Their most obedient

Humble Servants,

THOMAS MARTIN & CO.

This Page is worked with TWO-SHILLING INK, *and is confidently recommended for all the purposes of common Book Printing.*

AGENTS.

Messrs. CHARLES GRAFTON and Co. Stationers, Birmingham.
Messrs. BEILBY and KNOTTS, Booksellers, Ditto.
Messrs. LUMSDEN and SON, Stationers, Glasgow.
Mr. JOHN CUMMING, Bookseller, Dublin.

WAREHOUSE IN LONDON.

MR. T. BISHOP,

No. 10, FISHER-STREET, RED-LION-SQUARE.

PRICES.

1s. 6d. ... 2s. ... 3s. ... 4s. ... 6s. ... and 12s. ... per Pound.

No. II.

ADDRESS.

The Art of Printing having, within a few years, arrived at a point of excellence unattempted at any former period, it may seem surprising that an article so essential to its perfection as the Ink should have so long remained in an unimproved state. It is, however, indisputably true, that this preparation has been found in numerous instances very defective; the Ink sometimes, from its tenacity, tearing off the fibre of the paper, and thus causing picks; at other times not drying properly, and therefore setting-off in the working, and subsequently when the book is bound; and still more frequently, from the impurities and imperfect combination of the oil and black, running on the paper and turning it of a yellow colour, by these defects destroying the excellency of work, which in every other respect may have been executed with the greatest care.

In the hope of avoiding these defects, which it is utterly impossible the Printer should foresee, and of producing an Ink that, while it combines beauty and richness of colour, is calculated to bring off a clear impression from Type, as well as from the finest shades of Wood Engraving, we have had recourse to numerous experiments, many of which have been of an expensive and troublesome nature. From the facility we possessed (being printers) of trying the products of these experiments, we were the better able to form a decided judgment as to the results. That we have succeeded, the extensive use of it must now fully evince, it having gained admission into the first offices in London, Edinburgh, Liverpool, Manchester, and Dublin; the Universities of Oxford and Cambridge, &c. &c.

Thus encouraged in their exertions, T. M. and Co. respectfully inform their friends and the trade in general, that they have recently obtained a patent for the manufacture of Fine Black; and, having completed an extensive apparatus for the purpose, they shall be enabled again to add very materially to the quality of their Inks, both as regards colour and quickness of drying: while at the same time there will be a saving to the Trade of more than 20 per cent, as the 2*s*. Ink may now be safely used to produce as good work as was formerly done with the 3*s*., and all the other prices in the same proportion; and the whole of the Inks being lighter bodied will go much further than heretofore; as well as produce a much better effect.

It may here be necessary to apologize for introducing a subject, in some measure foreign to this address; but we consider it a duty we owe to ourselves as well as to the Public, particularly to caution our friends against the insinuations of some Ink Makers who have recently started, and who have been attempting to gain a knowledge of our apparatus and manufacture by the most despicable means: though they may succeed in getting our men away, still their knowledge of the business cannot by that means become enlarged, as they are totally unacquainted with the nature of printing, and consequently cannot be supposed to understand the necessary qualifications to form good Ink.

In closing this address, and returning thanks to our friends, we cannot but feel grateful for the very distinguished patronage we have received, and at the same time assuring them, that every exertion will be used to merit a continuance of their favours, which will at all times claim the highest respect

From

Their humble Servants,

Birmingham,
June 1, 1825.

THOMAS MARTIN AND CO.

This Specimen is printed with Three-Shilling Ink.

No. III.

Specimen of Four-Shilling Ink.

THIS Ink is made with the PATENT SPIRIT BLACK,* and will be found much superior to their original manufacture at the same price, both in richness of colour and clearness of impression, while at the same time it possesses much stronger drying qualities.

T. M. and Co. wish to offer these Specimens to the Trade, as presenting the exact shade which each Ink is intended to produce when worked with proper care; and which, it is presumed, will be found calculated to produce as good work for every purpose of Printing as has generally been effected with Inks of a much higher price.

* See their Specification in the Repertory of Arts, vol. xliii. p. 257.

No. IV.

SPECIMEN OF SIX-SHILLING INK.

T. MARTIN, AND Co:
Printing INK Makers.
BIRMINGHAM.

T. C. HANSARD, Printer, Paternoster-Row, London.

TECHNICAL TERMS USED IN PRINTING.

Ball-knife.—A blunt knife used to scrape the pelt-balls.

Ball-nails.—Square-headed nails used in knocking up balls.

Bank.—A stage about four feet high, placed near the press.

Beard of a letter.—The outer angle of the square shoulder of the shank which reaches almost to the face of the letter, and commonly scraped off by founders.

Bearer.—A piece of reglet to bear the impression off a blank page.

Bite.—Is when the inked impression of the page, or any part of it, is prevented by the frisket's not being sufficiently cut out.

Blankets.—Woollen cloth, or white baize, to lay between the tympans.

Body.—The shank of the letter.

Bottle-arsed.—When letter is wider at the bottom than the top.

Bottom-line.—The last line of the page preceding the catch-line.

Brayer.—Is a round wooden rubber, almost of the fashion of a ball-stock, but flat at the bottom, and not above three inches diameter: it is used in the ink-block to bray or rub ink.

Break.—A short line.

Broadside.—A forme of one full page, printed on one side of a whole sheet of paper.

Broken letter.—By broken letter is not meant the breaking of the shanks of any of the letters, but the breaking of the orderly succession in which the letters stood, in a line, page, or forme, &c. and mingling them together, which mingled letters are called pie.—It is more properly termed broken matter.

Bur.—When the founder has neglected to take off the roughness of the letter in dressing.

Cards.—About a quire of paper, which pressmen use to pull down the spring or rising of a forme, which it is many times subject to by hard locking-up.

Cassie paper.—Broken paper.

Choke.—If a forme be not washed in due time, the ink will get into the hollows of the face of the letter; and that getting-in of the ink is called choking of the letter, or choking of the forme.

Clean proof.—When a proof has but few faults in it, it is called a clean proof; and when a proof is to be sent to the author, the pressmen are ordered to pull a clean proof.

Close matter.—Matter with few breaks or whites.

Correct.—When the corrector reads the proof, or the compositor mends the faults marked in the proof, they are both said to correct; the corrector the proof, the compositor the forme.

Corrections.—The letters marked in the proof are called corrections.

Devil.—The errand-boy of a printing-office.

Direction.—The word that stands alone on the right-hand, next to the bottom line of a page.

Direction-line.—The line the direction stands in.

Double.—Among compositors, a repetition of words; also, among pressmen, a sheet that is twice pulled and lifted ever so little off the forme after it was first pulled, most commonly (through the play of the joints of the tympan) takes a double impression: this sheet is said to double. Doubling also happens by the loose hanging of the platten, and by too much play which the tenons of the head may have in the mortises of the cheeks; it may also be occasioned by the decay of several parts of the press.

Dressing a chase, or forme.—The fitting the pages and chase with furniture and quoins.

Drive out.—When a compositor sets wide.

Empty press.—A press that is unemployed. In general every printing-office has one for a proof-press.

Even page.—The 2nd, 4th, 6th, or any other even-numbered page.

Fat face, or fat letter,—Is a broad-stemmed letter.

Fat work,—Is when there are many white-lines or break-lines in a work.

Fat forme.—When the pressman has a single pull.

First forme.—The forme the white paper is printed on, which generally has the first page of the sheet in it.

Fly.—The person that takes off the sheet from the press in cases of expedition.

Follow.—That is, "see if it follows"; is a term used as well by the corrector as by the compositor and pressman. It is used by the corrector and compositor when they examine how the beginning matter of the succeeding page agrees with the ending matter of the precedent page; and how the folios of those pages properly and numerically follow and succeed one another, lest the pages should be transposed. But the pressman only examines that the folio and beginning word of the second page and signature of the first and third page, when the reiteration is on the press, follow the folio and direction of the first page, and the signature of the third page follows the signature of the first page, lest the forme should be laid wrong on the press.

Foot of a page.—The bottom or end of a page.

Forme.—The pages when fitted into a chase.

Foul proof.—When a proof has many faults marked in it.

Fount.—The whole number of letters that are cast of the same body and face.

Friar.—When the balls do not take, the un-taking part of the balls that touches the forme will be left white; or if the pressmen skip over any part of the forme, and do not touch it with the balls, though they do take, yet in both these cases the white places are called friars.

Full forme or page.—A forme or page with few or no breaks or white-lines.

Full press.—When two men work at the press.

Fudge.—To contrive without necessary materials, or do work in a bungling manner.

Get-in.—Matter is got in in a line, page, sheet, or book, if letter be thinner cast than the printed copy the compositor sets from; or matter is got in if the compositor sets closer.

Good colour.—Sheets printed neither too black nor too white.

Good work,—Is so called in a twofold sense: the master-printer calls it good work when the compositors and pressmen have done their duty; and the workmen call it good work, if it be light, easy work, and they have a good price for it.

Half press.—When but one man works at the press.

Head-page.—The beginning of a subject.

Heap.—So many reams or quires as are set out by the warehouse-keeper for the pressman to wet.

Heap holds out.—When it has its full number of sheets.

Holds out or not holds out.—These terms are applicable to the quires of white paper, to wrought-off heaps, to gathered books, and sorts of letter, &c. If quires of white paper have twenty-five sheets each in them, they say, the paper holds out five and twenties. Of wrought-off heaps, the heap that comes off first in gathering is said not to hold out. Of gathered books, if the intended number of perfect books are gathered, they say the impression holds out; but if the intended number of perfect books cannot be gathered off the heaps, they say the impression holds not out. And so for sorts of letter.

Horse.—The stage on which the pressmen set the heaps of paper on their banks.

Horse.—If any journeyman set down in his bill on Saturday-night more work than he has done, that surplus is called horse.

Hours.—Pressmen reckon their work by hours, reckoning every token to be an hour's work; and though it be the same effectually with tokens, yet they make their prices of different work by the hour, and it passes current for a token. If two men work at the press, ten quires is an hour; if one man, five quires is an hour.

Imperfections of letters.—When the founder has not cast a proportional number of each sort of letter, it is making the rest of the fount imperfect.

Insertion.—If the compositor has left out words or lines, the corrector inserts them, and makes this mark ʌ where they are left out.

Keep in,—Is a caution either given to, or resolved on, by the compositor, when there may be doubt of driving out his matter beyond his counting-off, wherefore he sets close to keep in.

Keep out.—The practice opposite to the preceding.

Kern of a letter.—That part which hangs over the body or shank.

Lean face.—A letter whose stems and strokes have not their full width.

Letter hangs,—If the compositor is careless in emptying his composing-stick, so as to set the letter loosely down in the galley, and it stands not perfectly square and upright, the letter hangs; or if after overrunning on the correcting stone, he has not set his letter in a square position again, before he locks up, the letter thus out of square is said to hang.

Long pull,—Is when the bar of the press requires to be brought close to the cheek to make a good impression.

Low case.—When the compositor has composed almost all the letters out of his case.

Mackle.—When part of the impression on a page appears double, owing to the platten's dragging on the frisket.

Matter.—Compositor's copy; also the letter, when composed, is called matter.

Measure.—The width of a page.

Monk.—When the pressman has not distributed his balls, and the ink lies in blotches, it is called a monk.

Naked forme.—When the furniture is taken from about all the sides of the pages.

Odd page.—The 1st, 3rd, and all uneven-numbered pages.

Off.—Pressmen are said to be off when they have worked off the designed number from a forme.

Out.—A compositor is said to be out when he has composed all his copy.

Out of register.—When pages are not worked even on each other.

Pale colour.—When the sheets are worked off with too little ink.

Pelts.—Untanned sheep-skins used for balls.

Picks.—When any dirt gets into the hollows of the letter, which chokes up the face of it, and occasions a spot.

Point-holes.—Holes made by the points in a worked-off sheet of paper.

Press goes.—When the pressmen are at work.

Pie.—When a page is broken, and the letters confused.

Quarters.—Octavos and twelves formes are said to be imposed in quarters, not from their equal divisions, but because they are imposed and locked up in four parts.

Register-sheet.—Sheet or sheets printed to make register with.

Reiteration.—The second forme, or the forme printed on the back-side of the white paper.

Reglet.—A thin sort of furniture, of an equal thickness all its length. It is quadrat high, of several thicknesses.

Rise.—A forme is said to rise, when in rearing it off the correcting-stone no letter or furniture, &c. drop out.

Runs on sorts.—When only a few sorts of letters are used in a work.

Set off.—Sheets that are newly worked off at the press often set off, and more particularly so when beaten with soft ink.

Shank.—The square metal the face of a letter stands on.

Signature.—Any letter of the alphabet used at the bottom of the first page of a sheet, as a direction for the binders to place the sheets in a volume.

Slur.—When the impression of the sheets appear smeared.

Smouting.—When either compositors or pressmen are employed for a short time, and not engaged for a constancy.

Sorts.—The letters that lie in every box of the case are separately called sorts in printers' and founders' language.

Spanish [*q*ᵗ *Span-hitch*].—A slight kind of pull at a common wood-press.

Squabble.—A page or forme is squabbled when the letter of one or more lines are got into any of the adjacent lines; or that the letter or letters are twisted about out of their square position.

Stem.—The name given to the straight, flat strokes of a straight letter.

Superior letters.—These are often set to marginal notes, references, or authorities; they are letters of a small face, justified by the founder in the mould near the top of the line.

Thin space,—Ought by a strict, orderly, and methodical measure, to be made of the thickness of the seventh part of the body; though founders make them indifferently thicker or thinner.

Turn for a letter.—It often happens when matter runs upon sorts, especially in capitals or some other sorts seldom used, that the compositor wants that sort the matter runs on; and he is loath to distribute letter for that sort, as perhaps his case is otherwise full: therefore, he turns a letter of the same thickness, with the foot of the shank upwards, and the face downwards; which turned letter being easily to be seen, he afterwards, when he can accommodate himself with the right sort, takes out, and puts the right letter in its room. It is also a word used jocosely in the chapel; as, when any one complains of wanting any thing—he is answered, "Turn for it"—that is, "make shift for it."

Vantage.—When a white page or more happens in a sheet, the compositor calls that vantage: so does the pressman, when a forme of one pull comes to the press.

Underhand.—A phrase used by pressmen for the light and easy, or heavy and hard running in of the carriage. Thus they say, the press goes light and easy underhand, or it goes heavy or hard underhand.

Upper-hand.—When the spindle goes soft and easy, the pressmen say, it goes well upper-hand or above-hand. But the contrary if it goes hard and heavy.

White-line.—A line of quadrats.

White-page.—A page that no matter comes in.

White-paper.—Although the first forme be printed off, yet pressmen call that heap white-paper, till the reiteration be printed.

Chiswell Street New Script.

in	ir	is[1]	is[2]	iv[1]	iv[2]	k	lo	ks[1]	ks[2]	l	l	ls[1]	ls[2]
m	mr	m	mr	ms[1]	ms[2]	ms[1]	ms[2]	n	nr	n	nr	ns[1]	ns[2]
ns[1]	ns[2]	o[1]	o[2]	p	pr	pr	ps[1]	ps[2]	q	r	r	rr	rr
r	r	r	r	rs[1]	rs[2]	rs[1]	rs[2]	s	s	s[1]	s[2]	t	t
t	tr	ts[1]	ts[2]	u	w	um	un	ur	us[1]	us[2]	v[1]	v[2]	v[1]
v[2]	w[1]	w[2]	w[1]	w[2]	x	y	y	y	y	ys[1]	ys[2]	ys[1]	ys[2]
z	j	Line be-	-ginnings.	Thin space.	Thick	Space.	Hair Space.	n quad.	m quad.	Line-	-endings.	Quadrats	(common).

Those sorts marked with [1] *are cast thin, for joining with those letters which commence with a junction stroke, as m, n, r, v, w, x, y, z, and the compounds commencing with those letters. Those marked with* [2], *and distinguished by an extra nick, are cast thick, to go before a, b, c, d, e, f, g, h, i, k, l, o, p, q, t, u, &c.*

ABSTRACTS OF ACTS

RELATIVE TO

PRINTERS AND BOOKSELLERS.

By the Act 13 Geo. II. cap. 19 (to restrain and prevent the excessive increase of horse races, &c.) it is enacted, "That every person or persons who shall make, print, publish, advertise, or proclaim any advertisement or notice of any plate, prize, sum of money, or other thing, of less value than fifty pounds, to be run for by any horse, mare, or gelding, shall forfeit and lose the sum of one hundred pounds."

By the Act 25 Geo. II. cap. 36 (for the better preventing thefts and robberies), it is enacted, "That any person publicly advertising a reward with 'No questions asked,' for the return of things which have been stolen or lost, or making use of any such words in such public advertisements, &c. shall for every such offence forfeit fifty pounds."

The Act 39 Geo. III. cap. 79 (for the more effectual suppression of societies established for seditious and treasonable purposes), contains several provisions and penalties respecting printers, letter-founders, and printing-press makers.

Sect. 23 enacts, "That, from and after the expiration of forty days from the day of passing this Act, every person having any printing press, or types for printing, shall cause a notice thereof, signed in the presence of and attested by one witness, to be delivered to the clerk of the peace acting for the county, stewartry, riding, division, city, borough, town, or place, where the same shall be intended to be used, or his deputy, according to the form prescribed in the schedule hereunto annexed; and such clerk of the peace, or deputy, respectively, shall, and he is hereby authorized and required to grant a certificate in the form prescribed in the schedule hereunto annexed, for which such clerk of the peace, or deputy, shall receive the fee of one shilling, and no more; and such clerk of the peace, or his deputy, shall file such notice, and transmit an attested copy thereof to one of his Majesty's principal secretaries of state; and every person who, not having delivered such notice and obtained such certificate as aforesaid, shall, from and after the expiration of forty days next after the passing of this Act, keep or use any printing press or types for printing, or having delivered such notice and obtained such certificate as aforesaid, shall use any printing press or types for printing in any other place than the place expressed in such notice, shall forfeit and lose the sum of twenty pounds."

Sect. 24 exempts his Majesty's printers, and the public presses belonging to the two Universities.

Sect. 25 and 26 relate to type-founders and printing-press makers.

Sect. 27 enacts, "That from and after the expiration of forty days after the passing of this Act, every person who shall print any paper or book whatsoever, which shall be meant or intended to be published or dispersed,

whether the same shall be sold or given away, shall print upon the front of every such paper, if the same shall be printed on one side only, and upon the first and last leaves of every paper or book which shall consist of more than one leaf, in legible characters, his or her name, and the name of the city, town, parish, or place, and also the name (if any) of the square, street, lane, court, or place, in which his or her dwelling-house, or usual place of abode shall be; and every person who shall omit so to print his name and place of abode on every such paper or book printed by him, and also every person who shall publish or disperse, or assist in publishing or dispersing, either gratis or for money, any printed paper or book, which shall have been printed after the expiration of forty days from the passing of this Act, and on which the name and place of abode of the person printing the same shall not be printed as aforesaid, shall, for every copy of such paper so published or dispersed by him, forfeit and pay the sum of twenty pounds."

Sect. 28 exempts papers printed by authority of either house of parliament.

Sect. 29 enacts, "That every person who, from and after the expiration of forty days after the passing of this Act, shall print any paper for hire, reward, gain, or profit, shall carefully preserve and keep one copy (at least) of every paper so printed by him or her, on which he or she shall write, or cause to be written or printed, in fair and legible characters, the name and place of abode of the person or persons by whom he or she shall be employed to print the same; and every person printing any paper for hire, reward, gain, or profit, who shall omit or neglect to write, or cause to be written or printed as aforesaid, the name and place of his or her employer on one of such printed papers, or to keep or preserve the same for the space of six calendar months next after the printing thereof, or to produce and show the same to any justice of the peace, who, within the said space of six calendar months, shall require to see the same, shall, for every such omission, neglect, or refusal, forfeit and lose the sum of twenty pounds."

Form of Notice to be given to the Clerk of the Peace, that any Person keeps any Printing Press or Types for Printing.

To the Clerk of the Peace for ——— [here insert the county, stewartry, riding, division, city, borough, town, or place], or his deputy.

I, A. B, of ——— do hereby declare that I have a printing-press and types for printing, which I propose to use for printing within ———, and which I require to be entered for that purpose, in pursuance of an Act passed in the thirty-ninth year of the reign of his Majesty King George the Third, entitled, "An Act for the more effectual suppression of societies established for seditious and treasonable purposes, and for better preventing treasonable and seditious practices."

Witness my hand this —— day of ———.

Signed in the presence of ———.

Act 60 Geo. III. cap. viii.—*For the more effectual Prevention and Punishment of Blasphemous and Seditious Libels.*

Commences by declaring that it is expedient to make more effectual provision for the punishment of blasphemous and seditious libels; and then proceeds to enact; I. That from and after the passing of the act, in every case in which any verdict or judgment by default shall be had against any person for composing, printing, or publishing any blasphemous libel, or any

seditious libel, tending to bring into hatred or contempt the person of his majesty, his heirs or successors, or the regent, or the government and constitution of the United Kingdom as by law established, or either house of parliament, or to excite his majesty's subjects to attempt the alteration of any matter in church or state as by law established, otherwise than by lawful means, it shall be lawful for the judge, or the court before whom or in which such verdict shall have been given, or the court in which such judgment by default shall be had, to make an order for the seizure and carrying away and detaining in safe custody, in such manner as shall be directed in such order, all copies of the libel which shall be in the possession of the person against whom such verdict or judgment shall have been had, or in the possession of any other person named in the order for his use; evidence upon oath having been previously given to the satisfaction of such court or judge, that a copy or copies of the said libel is or are in the possession of such other person for the use of the person against whom such verdict or judgment shall have been had as aforesaid; and in every such case it shall be lawful for any justice of the peace, or for any constable or other peace-officer acting under any such order, or for any person or persons acting with or in aid of any such justice of the peace, constable, or other peace-officer, to search for any copies of such libel in any house, building, or other place whatsoever belonging to the person against whom any such verdict or judgment shall have been had, or to any other person so named, in whose possession any copies of any such libel, belonging to the person against whom any such verdict or judgment shall have been had, shall be; and in case admission shall be refused or not obtained within a reasonable time after it shall have been first demanded, to enter by force by day into any such house, building, or place whatsoever, and to carry away all copies of the libel there found, and to detain the same in safe custody until the same shall be restored under the provisions of this act, or disposed of according to any further order made in relation thereto.

II. That if in any such case as aforesaid judgment shall be arrested, or if, after judgment shall have been entered, the same shall be reversed upon any writ of error, all copies so seized shall be forthwith returned to the person or persons from whom the same shall have been so taken as aforesaid, free of all charge and expense, and without the payment of any fees whatever; and in every case in which final judgment shall be entered upon the verdict so found against the person or persons charged with having composed, printed, or published such libel, then all copies so seized shall be disposed of as the court in which such judgment shall be given shall order and direct.

III. Provided that in Scotland, in every case in which any person or persons shall be found guilty before the court of justiciary, of composing, printing, or publishing any blasphemous or seditious libel, or where sentence of fugitation shall have been pronounced against any person or persons, in consequence of their failing to appear to answer to any indictment charging them with having composed, printed, or published any such libel, then and in either of such cases, it shall and may be lawful for the said court to make an order for the seizure, carrying away, and detaining in safe custody, all copies of the libel in the possession of any such person or persons, or in the possession of any other person or persons named in such order, for his or their use, evidence upon oath having been previously given to the satisfaction of such court or judge, that a copy or copies of the said libel is or are in the possession of such other person for the use of the person against whom such verdict or judgment shall have been had as aforesaid; and every such order so made shall and may be carried into effect, in such and the same manner as any order made by the court of justiciary, or any circuit court of justiciary, may be carried into effect according to the law and practice of Scotland: provided always, that in the event of any person or persons being reponed against any such sentence of fugitation, and being thereafter acquitted, all copies so seized shall be forthwith returned to the person or persons from whom the same shall have been so taken as aforesaid; and in all other cases,

the copies so seized shall be disposed of in such manner as the said court may direct.

IV. That if any person shall be legally convicted of having, after the passing of this act, composed, printed, or published any blasphemous libel or any such seditious libel as aforesaid, and shall, after being so convicted, offend a second time, and be thereof legally convicted before any commission of Oyer and Terminer or Gaol Delivery, or in his majesty's court of King's-bench, such person may, on such second conviction, be adjudged, at the discretion of the court, either to suffer such punishment as may now by law be inflicted in cases of high misdemeanors, or to be banished from the United Kingdom, and all other parts of his majesty's dominions, for such term of years as the court in which such conviction shall take place shall order.

V. That in case any person so sentenced and ordered to be banished as aforesaid, shall not depart from this United Kingdom within thirty days after the pronouncing of such sentence and order as aforesaid, for the purpose of going into such banishment as aforesaid, it shall and may be lawful to and for his majesty to convey such person to such parts out of the dominions of his said majesty, as his majesty by and with the advice of his privy council shall direct.

VI. That if any offender, who shall be so ordered by any such court as aforesaid to be banished in manner aforesaid, shall after the end of forty days from the time such sentence and order hath been pronounced, be at large within any part of the United Kingdom, or any other part of his majesty's dominions, without some lawful cause, before the expiration of the term for which such offender shall have been so ordered to be banished as aforesaid, every such offender being so at large as aforesaid, being thereof lawfully convicted, shall be transported to such place as shall be appointed by his majesty for any term not exceeding fourteen years; and such offender may be tried, either before any justices of Assize, Oyer and Terminer, Great Sessions, or Gaol Delivery, for the county, city, liberty, borough, or place where such offender shall be apprehended and taken, or where he or she was sentenced to banishment; and the clerk of assize, clerk of the peace, or other clerk or officer of the court having the custody of the records where such order of banishment shall have been made, shall, when thereunto required on his majesty's behalf, make out and give a certificate in writing, signed by him containing the effect and substance only (omitting the formal part) of every indictment and conviction of such offender, and of the order for his or her banishment, to the justices of Assize, Oyer and Terminer, Great Sessions, or Gaol Delivery, where such offender shall be indicted, for which certificate six shillings and eight pence, and no more shall be paid, and which certificate shall be sufficient proof of the conviction and order for banishment of any such offender.

The remaining clauses relate only to the mode of proceeding in case of former conviction, limitation of actions, &c.

Act 60 Geo. III. cap. ix.—*To subject certain Publications to the Duties of Stamps upon Newspapers, and to make other Regulations for restraining the abuses arising from the Publication of Blasphemous and Seditious Libels.*

First recites, that pamphlets and printed papers containing observations upon public events and occurrences, tending to excite hatred and contempt of the government and constitution of these realms as by law established, and also vilifying our holy religion, have lately been published in great numbers, and at very small prices; and it is expedient that the same should be restrained, and enacts; I. That all pamphlets and papers containing any public news, intelligence, or occurrences, or any remarks or observations thereon, or upon any matter in church or state, printed in any part of the

United Kingdom for sale, and published periodically, or in parts or numbers, at intervals not exceeding twenty-six days between the publication of any two such pamphlets or papers, parts or numbers, where any of the said pamphlets or papers, parts or numbers respectively, shall not exceed two sheets, or shall be published for sale for a less sum than sixpence, exclusive of the duty by this act imposed thereon, shall be deemed and taken to be newspapers within the true intent and meaning of several other acts of parliament now in force relating to newspapers; and be subject to such and the same duties of stamps, with such and the same allowances and discounts, as newspapers printed in Great Britain and Ireland respectively, now are subject unto under and by virtue of the said recited acts of parliament, and shall be printed, published, and distributed under and subject to all such and the like rules, regulations, restrictions, provisions, penalties, and forfeitures, as are contained in the said recited acts, or either of them.

II. That no quantity of paper less than a quantity equal to twenty-one inches in length and seventeen inches in breadth, in whatever way or form the same may be made, or may be divided into leaves, or in whatever way the same may be printed, shall be deemed or taken to be a sheet of paper within the meaning and for the purposes of this act.

III. That no cover or blank leaf, or any other leaf upon which any advertisement or other notice shall be printed, shall, for the purposes of this act, be deemed or taken to be a part of any such pamphlet, paper, part, or number aforesaid.

IV. That all pamphlets and papers containing any public news, intelligence, or occurrences, or any such remarks or observations as aforesaid, printed for sale, and published periodically, or in parts or numbers, at intervals exceeding twenty-six days between any two such pamphlets or papers, parts or numbers, and which said pamphlets, papers, parts or numbers respectively, shall not exceed two sheets, or which shall be published for sale at a less price than sixpence, shall be first published on the first day of every calendar month, or within two days before or after that day, and at no other time; and that if any person or persons shall first publish or cause to be published any such pamphlet, paper, part, or number aforesaid, on any other day or time, he or they shall forfeit for every such offence the sum of twenty pounds.

V. That upon every pamphlet or paper containing any public news, intelligence, or occurrences, or any remarks or observations thereon, or upon any matter in church or state, printed in any part of the United Kingdom for sale, and published periodically, or in parts or numbers, at intervals not exceeding twenty-six days between the publication of any two such pamphlets or papers, parts or numbers, and upon every part or number thereof, shall be printed the full price at which every such pamphlet, paper, part, or number shall be published for sale, and also the day on which the same is first published; and if any person shall publish any such pamphlet, paper, part or number, without the said price and day being printed thereon, or if any person shall at any time within two months after the day of publication printed thereon as aforesaid, sell or expose to sale any such pamphlet, paper, part, or number, or any portion or part of such pamphlet, paper, part, or number, upon which the price so printed as aforesaid shall be sixpence, or above that sum, for a less price than the sum of sixpence, every such person shall for every such offence forfeit and pay the sum of twenty pounds.

VI. Provided always, That nothing in this Act shall extend or be construed to extend to subject any person publishing any pamphlet or paper to any penalty for any allowance in price made by the person for whom and on whose behalf, and for whose profit, benefit, or advantage, the same shall have been first published, to any bookseller or distributor, or other person to whom the same shall be sold for the purpose of retailing the same.

VII. That all pamphlets and papers which are by this Act declared to be subject to the stamp duties upon newspapers, shall be freed and discharged from all the stamp duties and regulations contained in any act of parliament relating to pamphlets.

VIII. That no person, from and after thirty days after the passing of this Act, shall print or publish for sale, any newspaper, or any pamphlet or other paper containing any public news, intelligence, or occurrences, or any remarks or observations thereon, or upon any matter in church or state, which shall not exceed two sheets, or which shall be published for sale at a less price than sixpence, until he or she shall have entered into a recognizance, in the sum of three hundred pounds, if such newspaper, pamphlet, or paper shall be printed in London or within twenty miles thereof, and in the sum of two hundred pounds, if such newspaper, &c. shall be printed elsewhere in the United Kingdom, and his or her sureties in a like sum in the whole, conditioned that such printer or publisher shall pay to his majesty, his heirs and successors, every such fine or penalty as may at any time be imposed upon or adjudged against him or her, by reason of any conviction for printing or publishing any blasphemous or seditious libel, at any time after the entering into such recognizance or executing such bond; and that every person who shall print or first publish any such newspaper, pamphlet, or other paper, without having entered into such recognizance, or executed and delivered such bond with such sureties as aforesaid, shall, for every such offence, forfeit the sum of twenty pounds.

IX. If sureties pay any part of the money for which they are bound, or become bankrupt, new recognizance or bond with sureties must be given.

X. Provided sureties may withdraw from recognizance upon giving notice, and new recognizance to be entered into.

XI. Bonds not to be subject to stamp duty.

XII. Lists of recognizances and bonds taken, to be transmitted to commissioners of stamps in England, Scotland, and Ireland, respectively.

XIII. And whereas the printer or publisher of any newspaper, and of any pamphlet and paper hereby enacted to be deemed and taken to be a newspaper, will, after the passing of this Act, be bound, under and by virtue of the provisions contained in the said acts made and passed in the thirty-eighth and fifty-fifth years of his majesty's reign respectively, to deliver to the commissioners of stamps in Great Britain and Ireland respectively, or some distributor of stamps or other officer, on the day on which the same is published, or within a certain time afterwards, one of the newspapers, pamphlets, or papers so published, signed as in the said acts is respectively directed: And whereas it is expedient that the same or similar provisions and regulations should extend and be applied to all pamphlets and papers, whether published periodically or not, and which shall contain any public news, intelligence, or occurrence, or any remarks or observations thereon, or upon any matter in church or state, and which shall not exceed two sheets as aforesaid, or which shall be published for sale at a less price than sixpence; be it therefore enacted, That from and after ten days after the passing of this Act, the printer or publisher of any pamphlet or other paper for sale, containing any public news, intelligence, or occurrences, or any remarks or observations thereon, or on any matter in church or state, shall, upon every day upon which the same shall be published, or within six days after, deliver to the commissioners of stamps for Great Britain and Ireland respectively, at their head offices, or to some distributor or officer to be appointed by them to receive the same, and whom they are hereby required to appoint for that purpose, one of the pamphlets or papers so published upon each such day, signed by the printer or publisher thereof, in his hand-writing, with his name and place of abode; and the same shall be carefully kept by the said com-

missioners, or such distributor or officer as aforesaid, in such manner as the said commissioners shall direct; and such printer or publisher shall be entitled to demand and receive from the commissioners, or such distributor or officer, the amount of the retail price of such pamphlet or paper so delivered; and in every case in which the printer and publisher of such pamphlet or paper shall neglect to deliver one such pamphlet or paper in the manner hereinbefore directed, such printer and publisher shall, for every such neglect respectively, forfeit and lose the sum of one hundred pounds.

XIV. Provided always, That in case the said commissioners, or such distributor or officer aforesaid, shall refuse to receive or pay for any copy of such pamphlet or paper offered to be delivered to them or him as aforesaid, for or on account of the same not being within the true intent and meaning of this Act, such commissioners, distributor, or officer shall, if required so to do, give and deliver to such printer or publisher a certificate in writing, that a copy of such pamphlet or paper had been by him duly offered to be delivered; and such printer or publisher shall thereupon be freed and discharged from any penalty for not having delivered such copy as aforesaid.

XV. That if any person shall sell or expose to sale any pamphlet or other paper not being duly stamped, if required to be stamped, such person shall, for every such offence, forfeit the sum of twenty pounds.

XVI. That it shall be lawful for any of his majesty's courts of record at Westminster or Dublin, or of Great Session in Wales, or any judge thereof respectively, or for any Court of Quarter or General Sessions of the Peace, or for any justice of the peace before whom any person charged with having printed or published any blasphemous, seditious, or malicious libel, shall be brought for the purpose of giving bail upon such charge, to make it a part of the condition of the recognizance to be entered into by such person and his or her bail, that the person so charged shall be of good behaviour during the continuance of such recognizance.

XVII. Recovery of penalties. Provided always, that no larger amount in the whole than one hundred pounds shall be recoverable or recovered before any justices of the peace, for any such penalties incurred in any one day; any thing in this Act, or any other acts of parliament contained to the contrary notwithstanding.

XVIII. Two or more justices to determine offences, and may mitigate penalties.

XIX. Penalty on persons summoned as witnesses not appearing, &c.

XX to XXV. Relate to the forms of conviction, commencing actions for penalties, management of the duties, allowance of discounts, &c.

XXVI. That nothing in this Act shall extend to acts of parliament, proclamations, orders of council, forms of prayer and thanksgiving, and acts of state, ordered to be printed by his majesty, his heirs or successors, or his or their sufficient and authorised officer; or to any printed votes or other matters by order of either house of parliament; or to books commonly used in the schools of Great Britain or Ireland, or books or papers containing only matters of devotion, piety, or charity; or daily accounts; or bills of goods imported and exported; or warrants or certificates for the delivery of goods; and the weekly bills of mortality; or to papers containing any lists of prices current, or of the state of the markets, or any account of the arrival, sailing, or other circumstances relating to merchant ships or vessels; or of any other matter wholly of a commercial nature; provided such bills, lists, or accounts do not contain any other matter than what hath been usually comprised therein; or to the printers or publishers of the foregoing matters, or any or either of them.

XXVII. That nothing in this Act contained shall extend or be construed to extend to charge with stamp duties any work re-printed and re-published in parts or numbers, whether such work shall be wholly re-printed or shall be re-published in an abridged form; provided that the work so re-printed and re-published shall have been first printed and published two years at the least previous to such re-printing and re-publication, and provided the said work was not first published in parts or numbers.

INDEX.

PART I.

HISTORY OF THE ART.

ABBREVIATIONS, very frequent in early printed books, 104; awkward expedient to obviate the inconvenience, *ib.*

Abergavenny-house [*see* Bergavenny]

Adams, Richard, an early London printer, 130

Advertisement, in prose or verse, usual among the first printers, to state the mode of the production as done by metal types, 87; some specimens, 88

Africa, Printing almost extinct in several parts of, 63

Aggas, Edward, an early London printer, 136

Alban's, St., the introducer of printing into, unknown, 191; the practice afterwards unsuccessfully attempted by John Hertford, *ib.*

Alde, John, 130; Edward, 139; early London printers

Aldus Manutius, several editions by, on cotton paper, 207

Aldus Manutius, Paul Manutius, and Aldus, three celebrated printers at Venice; brief notices of, 301, 302

Alexander the Great, a work on the actions of, stated to be the first production in Europe of block-printing, 20

Alfred [*see* West]

Alphabetic Writing, ascribed severally to the Chaldeans and Phœnicians, 11; attributed by Maurice and Bryant to divine instruction, 12; Sigean Inscription, the most ancient specimen of extant, 13

Andrew, Laurence, an early London printer, 114

Antiquarian Society of Newcastle-upon-Tyne, a bronze stamp in their possession which indicates a near approach to the knowledge of printing, 15

Antonius Bononia [*see* Bononia]

"Annunciation, The," impressions of an early wood-cut, an advanced step in the art of block-book-printing, 24

"Assumption, The," the impressions of, some of the earliest specimens of metal-plate-printing, 23

Atkins, author, and supposed inventor, of the Lambeth Record [*see* "Original and Growth," &c.]

Audeley, John, an early London printer, 130

Babylonian bricks, the earliest approach towards printing, how made, 2; different and inconclusive opinions respecting the characters impressed on them, 3, 4; Dr. Hagar's opinion on the subject, 4; the Author's idea of the mode of their impression, 5—7; remarkable resemblance betwixt, and the engraving of columns, &c. at Persepolis, 6 *n.*

Ballard, Henrie; *and*

Bamforde, Henry, early London printers, 136, 140

Banks, Richard, an early patent printer, brief notice of, 114; copy of the instrument, 145

Barber, John, esq. (afterwards lord mayor) in 1710 succeeded Samuel Roycroft as city-printer, 139

Barker, Christopher and Robert, queen's printers in 1555, brief notice of, 134

Barley, William, an early London printer, 140

Barnes, formerly a printer to the University of Oxford, 189

Bartholomew's, St., Hospital, accommodated the Stationers' Company at the time of the great fire, 239

Bartlet, William, an early London printer, 137

Baskerville, apostrophe to, in "The Press," 293; sketch of his life, 310—313

Beachey, sir W., a picture by him, of William Strahan, esq., in Stationers' Hall, 242

Beauchesne, John de, an early London printer, 141

Bennett College, Cambridge, said to contain a copy of the celebrated *Biblia Pauperum*, but which cannot be found there, 37 *n.*

Bensley, an eminent printer, alluded to in Mr. M'Creery's poem, 294

Bergavenny House, purchased by the Stationers' Company in 1611, for the site of their present hall, 238

Bergel, Arnold de, a printer of Mayence, author of "*Encomion Calcographiæ*," his assumptions as to the originators of printing, 285 *n.*

Berthelet, Thomas (king's printer), 115; copy of the patent granted to him, 142

Beverley, an early seat of printing, 191

Bewicks, Messrs., modern wood-engravers of the first class, and adjutors of Mr. Bulmer in his splendid editions, 315

Bible, the first edition of, in English, translated by Miles Coverdale, and published by Grafton, 149; extracts from its dedication to king Henry VIII. *ib.*—153; allowed by royal authority, 155, 156; Tyndal's, 155; Matthews's, 157; a remarkable one published by bishop Bonner, 158; Cranmer's description of, *ib.*—161; established as part of the English service, 172

Biblia Pauperum, one of the celebrated books of images without text, described in detail, 33—37; engraved specimen of, from Rev. Mr. Horne's Introduction to Bibliography

Binding of books, curious instance of the method of, in early times, 105 *n*; statute regarding, 145—148

Bird, a patent music printer, 173

Bishop, George, an early London printer, 135

"Black-book," confirms the statement of printing having been first practised at Mentz, 77

INDEX.

Bleaching, an operation in the manufacture of paper, described, 213; bleaching in the engine, 214

Block-printing, early history of, 18 *et seq.*; reference to Mr. Ottley's, and Papillon's works on, 18; the invention referred to the Chinese, 19; mode of executing, in that country, *ib.*; earliest European practice attributed to "the two Cunio," 20; their first work, on Alexander the Great, produced in Italy, in the 13th century, 20, 21; earliest impression from wood extant in the collection of earl Spencer, 24; progress of the art [*see* Engraving]

Blocks of wood, engraved, the earliest specimens of printing connected with the idea of forming books 10

Blowar, Ralph, an early London printer, 140

Bodleian Library at Oxford contains a copy of the celebrated *Biblia Pauperum*, 36

Bodoni, an eminent printer at Parma, allusion to, by Mr. M'Creery, 293; further notice of, 313—315

Bold, Martin, Architypographus at Oxford, 190

Bollifant, Edmund; *and*

Bonner, bishop, statement of a New Testament, partly in English, published by him, 158

Bonham, William, early London printers, 138, 121

Bononia, Antonius, citation from, showing the estimation of books in his time, 69

Books, their value, as shown in a quotation from Middleton's Life of Cicero, 68; and from Antonius Bononia, 69; their enormous price before the invention of printing, instanced in the "*Romans de la Rose*," 69, their being formerly sold on conditions and securities like an estate, 70, and by various other facts, *ib.*; manner of publishing in earlier times, *ib.*; list of, printed at Oxford before the year 1500, 82; [*see* Binding, Proclamation, Ordinance.]

Books of Images, the earliest productions of the typographic art, description of, 33; distinction of them as without and with text, *ib.*; detailed description of a specimen of each class, *ib.*—39

Bourne, Robert; *and*

Bowen, John, early London printers, 140

Bowyer, Mr., bust of, with a remarkable inscription, in Stationers' Hall, 244; sketch of his life, 324—327

Boydell, alderman, his portrait, by Graham, in Stationers' Hall, 243

Boyle, Richard, an early London printer, 140

Bramah's hydrostatic-press, description of 224, 225; important improvement of his in the manufacture of paper, 221

Brancocke, Richard, an early London printer, 141

Bretton, Mr., a London merchant, an early encourager of printing abroad, 12

Bruce, the Abyssinian traveller, account of an Egyptian MS. on papyrus in his possession, 205

Bryant, Jacob, his opinion as to the origin of alphabetic writing, 12

Bulmer, lately an eminent printer, allusion to him in "The Press," 294; further notice of, 315

Burgundy, duchess of, sister to Edward IV., patroness of Caxton in his first typographical efforts, 93

Bury St. Edmund's, church of St. Mary at, description of an engraved monument, similar to those which are supposed to have suggested the designs formerly adopted in plate-printing, 32, 33 *n.*

Burrel, James, 130;—

Busbie, John;—

Butler, John;—

Byddle, John; *and*

Bynneman, Henry, early London printers, respective notices of, 140, 114, 116, 131; the last prosecuted for breach of privilege, *ib.*, 132 *n.*

Cadell, the late Thomas, esq., donor of the painted window in Stationers' Hall, 242

Cadmus, a contemporary with Moses, stated to have taught the Greeks the use of alphabetic symbols, 12

Camden, earl, portrait of, in Stationers' Hall, 243

Capital letters, not formerly used to begin sentences, or distinguish names, 104

Car, Roger, an early London printer, 121

Cards, playing, the second application of European wood-printing, 21

Carter, William, a daring London printer, executed for his "treasonable" publications, brief notice of, 138

Case, John; *and*

Caley, Robert, early London printers, 126—128

Cambridge, progress of the art at, under Siberch, Legate, and others, to Mr. Smith, the present appointed printer, 190, 191

Canterbury, printing practised in, in 1550, 192

Cassiodorus, his statement as to the papyrus paper used in his time, 204

Caxton, long undisputedly acknowledged the introducer of printing into England: his own testimony clear in favour of Gutenberg as the original inventor, 77; and of Mentz as the first place where it was practised, *ib.*; his own claims disputed, 74, 75; considered in detail, 76—87; and established, *ib.*; particulars of his life collected from Mr. Lewis's work, 91—103; his birth in the Weald of Kent, about 1412, 91; his scanty education, and apprenticeship, *ib.*; engages in the profession of a merchant, 92; employed by Edward IV. to conclude a treaty betwixt that prince and the duke of Burgundy, *ib.*; a retainer of the duchess, who proposes to him the translation of the "Recuyell," *ib.*; supposed to have first practised printing at Cologne, 94; settles in this kingdom, under the auspices of Edward IV., about 1473: established as printer in the Abbey at Westminster, in 1477, 86, 95; several books printed by him in 1478, *ib.*; his death, 96; and character, *ib.*, 97; his probable age, 98; his technical device, 99; character of his works, *ib.*, 100; and of his moral and religious feelings, *ib.*; description of his two more celebrated works, 101—103; engravings of his devices, *App.*—[*see* also Mr. M'Creery's "Press," 292]

Cawood, John, esq., printer to queens Mary and Elizabeth, and one of the first wardens of the Stationers' Company, brief notice of, 127; patent given him, 165

Caylus, count de, his opinion respecting the Egyptian papyrus, 204

Cecilia, St., the musical feast of, held for several years at Stationers' Hall, 239

Chaldean bricks [*see* Babylonian bricks]

Chaldeans, the origin of alphabetic writing ascribed to them, 11

Chapel, a technical term applied to the collected members of a printing-office, 292, 302; list of ancient customs in, 303—308; and of modern ones, *ib.*—309; the constitution, with its observances, now generally abolished, 310

Charles II., alteration of the Stationers' Charter by, 250, 251

Characters used in early printing, description of, 104

Charde, Thomas, an early London printer, 137

Charles VI. of Germany, cards made for him appear to have been the second productions of wood-printing in England, 21

Charlewood, John; *and*

Charlton, Richard, early London printers, 134, 126

Charter to the Stationers' Company, by Philip and Mary, 246—249; renewal of, by queen Elizabeth, 250; alteration of, by Charles II., 250, 251; confirmation of the original, by William III., 251

INDEX.

Chichley, archbishop, fine picture of, in Stationers' Hall, 245

China, the original, or wood, printing, specimen of, 17; attributed to that nation, 19, 20; simple process of the art there, 19; cotton paper commonly used, in several ages before its introduction into the Eastern empire, 205; the paper of China, 206; description of, 919, 920; and see China, part II.

Christopher, St., a representation of him carrying the infant Saviour, the earliest print from a wood-block, 24

Cicero, reference to a passage in his writings, which seems to indicate the present mode of printing, 30, 31; his high estimation of books, 68

City printers, succession of, from John Windet, in 1651, to the present period, 139

Clark, an Oxford University printer, 190

Clark, Andrew, succeeded Flesher as city printer in 1672, 139

Clay-printing, [*see* Babylonish bricks], printing not confined to the stamping of bricks for building, 7; description and engraving of a superior specimen of, 8—10

Cloth, used in China, as a substitute for paper, on the first discovery of printing, 20

Coldock, Francis, an early London printer, 130

Collingwood, S. and J., present printers to the University of Oxford, 190

Colwell, Thomas, an early London printer, 130

Combinations amongst workmen occasioned the introduction of Mons. Didot's paper-making machine, 228; their mischievous tendency shown, *ib.*

Cook, Toby, an early London printer, 140

Cooper, appointed by Elizabeth to the office of printer to the University of Oxford, 188

Copper-plate-printing, introduced through the practice of engraving on silver plate, 22

Copland, Robert and William, early London printers, 113

Corpus-Christi College contains a copy of the celebrated *Biblia Pauperum*, 36

Coster, or Janssen, Laurentius, claim made for him by Hadrianus Junius to be regarded as the inventor of printing, 48; statement of the case from Stower, 48—52; observations thereon by Willet, 52—54

Cotes, Richard, succeeded Windet in the office of city printer in 1651, 139

Couching, a process in the manufacture of paper, 218

Coverdale, Miles, his translation of the New Testament, published by Grafton, 149; brief notice of his life, 150

Coxe, Rev. Archdeacon, his account of the origin of printing, 42, 43

Creed, Thomas, an early London printer, 140

Crest of the Stationers' Company, a subject admitting of some dispute, 241

Crowley, Robert, an early London printer, 126

Crutterden, an Oxford printer, 190

"Cunio, the two," have the glory of the invention of wood-printing in Europe, 20

Danter, John, an early London printer, 140

Dates of books, alteration of, instanced in that of "Exposicio Sancti Jeronymi," &c., 79; conjecture as to their causes, 80; several instances of, *ib.*; two computed (but incorrectly) by Olympiads, 83, 84; irregular adoption of, in early times, 105

Davidson, the first Scotch printer on record, 194

Day, John, an early London printer, 122; held a general patent, 164

Day, Richard, M. A., an early London printer, 123

Deckle, a part of the mould in the manufacture of paper, 216, 217

Demster, Thomas, his statement as to the time of the use of linen-rag paper, 207

Denham, Henry,

Dewes, Gerard; *and*

Dexter, Robert, early London printers, 131, 140; whimsical device of the former to denote his name, 131 *n.*

Dibdin, Rev. T. F., his "Typographical Antiquities" referred to, on the character of Caxton, 101

Dickenson's machine for paper-making, 228

Didot, M. Leger, an eminent French printer, his improved machine for making paper, *ib.*; his typographical excellence alluded to by Mr. M'Creery, 293

Dipping, a process in the manufacture of paper, 218

Direction-lines omitted in the earliest, as well as in the latest practice of printing, 104

Domville, sir W., master of the Stationers' Company, and lord mayor, his portrait, by Owen, in the company's hall, 243

Drying, a process in the manufacture of paper, as improved by Mr. Bramah, 221

Dry-pressing, very important improvements in the process of, by Mr. Bramah, 224—226

Du Halde, J. B., his "Description, &c. de l'Empire du Chine," quoted, 19

Durer, Albert, engraver of the wood-cuts of "The Apocalypse," 28; brief sketch of his life, 29; character of, by Mr. Ottley, *ib.*; four original blocks of his engraving in the possession of Mr. Ottley, 30

East, Thomas, an early London printer, 133

East India Company's library possesses several Babylonian bricks, 4

Egyptian paper, or that manufactured from the papyrus, the most ancient kind, 203; stated by Isidore to have been first used at Memphis, *ib.*; by others at Seide, *ib.*; its preparation described, *ib.*—205

Elizabeth, queen, her confirmation of the Stationers' Charter, 249, 250

Engraving on metal, which led to the adoption of copper-plate printing, short notice of the former art, 22, 23; in *niello*, 22; several prints from metal engravings still extant, 23; on wood [*see* Block-printing]; earliest impression from, in the possession of earl Spencer, 24; notices of others exhibiting a more advanced state of the art, *ib.*; early mode of executing in outline, 27; improvements in shading, &c. as shown in the portraits, &c. in this work, 26, 27, 28; the accomplishment of cross-hatching, by Wohlgemuth, 28; and the full perfection of the art by Durer and Holbein, *ib.*

Erasmus, his decision against his own country, in favour of Mentz, as the birth-place of printing, 78

Escurial, palace of the, has several MSS. on linen and cotton paper prior to the thirteenth century, 208

Examining and dry-pressing, in the manufacture of paper, described, 223

Exposicio Jeronymi, &c. title of the book which for a time overthrew Caxton's claim to the honour of being regarded as first English printer, 74

Fabian, his testimony in favour of Mentz as the birth-place of printing, 77

Faques, Guillam, with Pinson, "Printers to the king" (Henry VII), 112

Faust [*see* Fust]

Fawkes, Richard, an early London printer, brief notice of, 116

INDEX.

Felts, implements used in paper-making, 217

Fenwick, Mr. Henry, in 1772 succeeded Mr. Charles Rivington as city printer, 139

Field, Richard, an early London printer, 140

Flesher, James, succeeded Cotes as city printer, in 1669, 139

Folios and quartos, the only sizes of books in early times, 104

Folios (numbers of the pages) not used by the first printers, 104

Follington, William, an early London printer, 122

Foudrinier, Messrs., their patent for improvements in paper-making, 227, 228

Foulis, Robert and Andrew, eminent scholars, connoisseurs, and printers, at Glasgow, from 1740, brief notice of, 196, 198

Franklin, poetical tribute to this eminent American printer, by Mr. M'Creery, 292

Frederic III., emperor of Germany at the era of printing; partial patronage bestowed by him upon the infant art, 43

Fust, John, the same with the celebrated "Dr. Faustus," the patron and partner of Gutenberg in his typographical efforts, 44; afterwards his prosecutor, 45; united with Schœffer, published the Psalter, the first book printed with cast metal types, 46; conceived by the Author to have been the patron, only, of the art of printing, 59; Mr. M'Creery treats him as the first type-founder, 290; and the introducer of the art into France, *ib.*

Gaguin, cited by Luckombe, states the price of a Concordance at a hundred crowns of gold, 69

Gaultier, Thomas;—

Geminie, Thomas;—

Gibson, Thomas; *and*

Godfray, Thomas, early London printers, brief notice of, 126, 129, 116, 113

Goes, Hugo, first known printer at York and at Beverley, 91

Gough, John, an early London printer, 116

Grafton, Richard, esq., an eminent early London printer, 117; celebrated as the printer of the Testament formally prohibited by the bishop of London, 148, 149; of Coverdale's Bible, 149; and by licence, generally, of books for divine service, 161, 162; of the statutes, &c., 162, 163; and author of the Chronicle, 164.

Graham [*see* Boydell]

Grant from James I. which constituted the Stationers a livery company, 262

Greenwich, an early seat of the art of printing, 192

Griffith, William, an early London printer, 130

Guilandinus, an English author of the 16th century, his opinion respecting the papyrus, or Egyptian paper plant, 203, 204

Gutenberg, John, one of the imputed inventors of typography, slight sketch of his life, 43, 45; his claims restricted to the use of wooden or cut-metal types, 48; acknowledged by Trithemius to have been the first who used metal types, and considered by the author to have been the founder of the art, 59; which is also confirmed by the testimony of Caxton, 77, assumed by Antonio de Bergel, 285 *n.*, and alluded to in M'Creery's "Press," 290

Hacket, Thomas, an early London printer, 130

Hadrianus, a maintainer of the claims of Haerlem to the honour of having been the birth-place of typography, 48

Haerlem, city of, a competitor with Mentz and Strasburgh for the invention of printing, 42

Hagar, Dr., his remark on the Babylonian printed bricks, 4

Halde [*see* Du Halde]

Hale, an Oxford University printer, 189

Hall, Rowland, 128

Hansard, Luke, esq., an eminent living printer, brief sketch of his typographical life, 329, 330

Harrison, Lucas, 130; John, 136;—

Harryson, Richard, 130; *and*

Haukyns, John, 116—early London printers

Hearne, the antiquary, architypographus at Oxford, 190

Heineker, controversy betwixt him and Zani, respecting the earliest document of wood-engraving in Europe, 20

Hermannus, description by him of a species of palm tree, the leaves of which were used for writing on, 203

Hertforde, John, an early London printer, 120; one of the same name attempted the revival of the profession at St. Alban's, 191

Hester, Andrew, 119; *and*

Hill, Nicholas, 124; and William, 126;—early London printers

Hoadly, bishop, excellent portrait of, in Stationers' Hall, 244

Holbein, an eminent wood-engraver, flourished about the close of the fifteenth century, 29; brief notice of some of his principal productions, 30

Hole, an eminent modern wood-engraver, 316

Horne, Rev. Mr., obligations of the author to his "Introduction to Bibliography" for wood-engravings and general information, 32; extracts from the work, 33—37; his observations on the Dutch pretences to the discovery of printing in the person of Coster and Janssoen, 56

Hoskins, William, 135; *and*

How, William, 133;—early London printers

Hughes, a late eminent printer, the predecessor of Mr. Luke Hansard, brief sketch of his typographical life, 328, 329

Hunt [*see* Rood]

Illumination, formerly in use to decorate the heads of Chapters, &c., gave way to the improvements of the typographic art, 104

Impressions, small number of, in the infancy of the art, 105

Imprint, omitted from early books, or put at the end with some pious adjunct, 105

Ipswich, printing practised at, in the time of its patron Cardinal, 192

Ireland, state of printing in, 198, 199

Irene, wife of Alexis Comnenes, proof from a document drawn up by her, about 1112, that cotton paper was then in use, 206

Isidore assigns the origin of Egyptian paper to Memphis, 203

Islip, Adam, an early London printer, 140

Italic characters, of comparatively late invention, 105

Italy produced the first European blocks for printing, 21

Jackson, Hugh, 135; John, 139;—early London printers

James, George, succeeded John Barber, esq. in the office of city-printer, 139

Jeffs, Abel, an early London printer, 136

INDEX.

Jenson, Nicholas, printer of the celebrated "*Decor Puellarum*," generally considered the first printer at Venice, but his claim to this honor contested by John de Spira, 80; poetical allusion to, by Mr. M'Creery, 291

Jones, sir William, his remark on the structure of the characters impressed on the bricks found at Babylon, 4

Jones, Richard, 133; *and*

Judson, Thomas, 141; early London printers

Jugge, Richard, printer to queen Elizabeth, 124, 165

Jussieu, his opinion on the distinction of the Egyptian papyrus, 203

Kele, Richard, an early London printer

Kent, Henry, esq., succeeded John Barber, esq., as city-printer, 139

Kerney, William, an early London printer

Kinge, John, an early London printer, 126

King's library contains a copy of the celebrated *Biblia Pauperum*, 36

King's printer [*see* Patent]

Kingston, John, 129; Felix, 141; early London printers

Kneller [*see* Nelson]

Kyrfeth, an early Oxford printer, 183

Kytson, Anthony, 129; *and*

Lacy, Alexander, 133; early London printers

Lambeth record, [*see* "Original and Growth," &c.]

Lant, Richard, 120; *and*

Latham, Roger, 117; early London printers

Latin language, commonly used, but ill calculated, to display type in specimen, 317, *et n.*

Leland, "The Antiquary," expressly calls Caxton the first printer of England, 87

Letton and Machlinia, the first London printers, produced "Lyttleton's Tenures" (still extant) previous to 1481, 85; principally law-printers, 107

Lee, Mr., an eminent engraver on wood; engraved the portraits in this work, xiv.

Legate, printer to the Cambridge University, 191

Lemoine's remark on the uncertainty of the originator of printing, 40; sketch by him of the progressive advancement of the art, 63—65

Lewis, Rev. John, first biographer of Caxton: brief history of the latter, collected from his book, 90—103

Lifting, a process in the manufacture of paper, 220

Lilly, the astrologer, portrait of, in Stationers'-hall, 243

Litchfield, an Oxford University printer, 189

Livy, an edition of, printed by Schoeffer, decisive testimony of Mentz being the birth-place of printing, 78

Lobel's Adversaria, description in, of the Egyptian plant papyrus, 203

Lobley, Michell, an early London printer, 119

London, first practice of printing in, by Letton and Machlinia, 85. Brief notices of the early printers in, viz. Letton and Machlinia, 107; Wynkyn de Worde, 107—110; Pinson, Julian Notary, 111; Faques, Pepwell, Scot, 112; Godfray, Rastell, Coplands, 113; Butler, Wyer, Redman, Banks, Andrew, 114; Reynes, Berthelet, 115; Fawkes, Haukyns, Will. Rastell, Toye, Byddle, Gibson, Gough, Marshall, 116; Latham, Grafton, Whitechurch, 117; Petit, 118; Wayland, Kester, Lobley, 119; Maler, Malert, Middleton, Hertford, Raynalde, Toy, Lant, 120; Bonham, Wolfe (the first who had a patent as classical printer to the King), 121; Follington, John Day (first printer of the Saxon type), 122; Richard Day, Seres, Smyth, Hill, Jugge, 124; Waley, Powel, Singleton, Hele, Scoloker, Powel, 125; Stoughton, Lynn, Hill, Crowley, Car, Tilly, Wyer, Charlton, Kinge, Gaultier, Tisdale, Mierdman, Case, Vele, 126; Turke, Wyghte, Cawood (printer to queen Mary), 127; Riddel, Hall, Tottel, Madeley, Caley, 128; Sutton, Kingston, Marshe, Geminie, Kytson, Powel, Rogers, Norton, 129; Adams, Barrel, Harryson, Moptid, Audeley, Alde, Hacket, Ralph, Coldock, Griffith, Harrison, Colwell, 130; Humph, Toy, Wykes, Dewes, Denham, Serlls, Bynneman, 131; Purfoot, 132; Lacy, East, Watkins, Roberts, How, Jones, Middleton, 133; Williamson, Vautrollier, Barkers, Charlewood, Woodcock, 134; Hoskins, Shepard, Dawson, N. Yetsweirt, C. Yetsweirt, Jackson, Maunsell, Waldegrave, Bishop, 135; John Harrison, Jeffs, Scarlet, Bamforde, Webster, Aggas, Wolfe (who contested his privileges with the patentees and the queen, Elizabeth), 136; Ward (of similar spirit and reputation), Chard, White, Bartlet, 137; Carter (the *treasonable* tract printer), Marsh, Yardley and Short, Newton, Robison, Bollifant, 138; Jackson, Venge, Waterson, Lust, Windet (city printer), Robinson, Alde, 139; Orwin, Field, Cook, White, Dexter, Kerney, Bourne, Danter, Ponsonby, Barley, Salisbury, Blowar, Bowen, Busbie, Boyle, Creed, Islip, Simpson, Sims, Ballard, 140; Kingston, Beauchesne, Norton (a donor to the Stationers' Company), Shaw, Judson, Brancocke, Strafford, 141

Longobardic character, a diploma written in, on bark, about the beginning of the eighth century, mentioned by Montfaucon, 205

Luckombe's Preface to Ames's Typographical Antiquities, given at length, 67—90

Lust, Thomas; and

Lynne, Gaulter, early London printers, 126

"Lyttleton's Tenures," the first book printed in London, 85

Mabillon dates the invention of linen-rag paper in the 12th century, 208

Machlinia [*see* Letton]

Madeley, Roger, an early London printer, 128

Maidstone, eminent paper mills at, 215

Malcolm, Mr., his description of Stationers' Hall, 240, 246

Maler, John, an early London printer, 120

Malert, Anthony, one of the early London printers, patentee of a folio bible, 120, 164

Marc Antonio, a Venetian artist, a close imitator of the style of Durer, in wood-engraving, 29

"Marlborough copy" of the *Biblia Pauperum* described, 37

Marshall, William, 116

Marshe, Thomas (patentee of Latin books), 129; Henry, 138; early London printers

Martin's (St.), the parish of, accommodated by the use of Stationers' Hall, 239

Mary, Queen of Scots, escaping from Lochlevin, picture of, by Graham, in Stationers' Hall, 245

Maso Fineguerra, first engraver *in niello*, by taking impressions from his silver engraved plate led to the invention of copper plate engraving, 22

Mattaire's Annals, an authority on the Introduction of Printing into England, 75, 78

Maunsell, Andrew, an early London printer, 135

Maurice, Mr., his opinion on the origin of alphabetic writing, 12

Mayence, considered by Antonio de Bergel as the

INDEX.

place where the typographic art became matured under Gutenberg, Faust, and Schoeffer, 285, *n.*

Memphis, stated by Isidore to be the place where papyrus was first used for paper, 203

Mentilius, an adopter, only, of the typographic art, ennobled on that plea by Frederick III. of Germany, 43

Mentz, a competitor with Haerlem and Strasburgh for the honour of having originated printing, 42; its claim established by the authority of Caxton, Anstis, Fabian, &c. 77; apostrophized in this character by M'Creery, 289

Middleton, Rev. Dr. Conyers, extract from his Life of Cicero, 68; the first English writer on the origin of printing in England, 74, *n.*; his account, 74, *et seq.*

Middleton, Wm., 120; Henry, 133; *and*

Mierdman, Stephen, 126; early London printers

Milk Street, site of the original Stationers' Hall in, 238

Milling, in the manufacture of paper, described, 213, 214

Monograms of the early English printers, from Rev. Mr. Horne's "Introduction to Bibliography." *Appendix.*

Montfaucon, his opinion as to the identity of the Egyptian papyrus, 203, 204, 205; remarkable specimen of bark-paper mentioned by him, 205; his observations on the present species of paper, 207, 208

Moptid, David, an early London printer, 130

Morrison, Rev. Robert, copies of his Chinese translation of the Scriptures, on Chinese paper, now in England, 206

Moscow, description of the reception given to printing, at, by Thevet, 62

Moses necessarily acquainted with the art of writing, 12

Mould, an implement in paper-making, 216

Moulsey, in Surrey, chosen for its seclusion to print the polemical works of the Puritans, 193

Moxon, Mr. J., high commendation by him of the earlier Dutch types, 316, 317

Mychell, first printer in Canterbury, 192

Nelson (author of the "Fasts and Festivals") portrait of him by sir G. Kneller, in Stationers' Hall, 245

Newbury, Ralph, an early London printer, 130

New Testament, strangely absurd observation of the Monks, when Greek editions were multiplied in England, 71; its publication refused to Erasmus by the University of Cambridge; prohibition by the bishop of London of the English edition printed by Grafton, 148, 149

Newton, Ninian, an early London printer, 133

Nichols, an eminent living printer, sketch of his typographical history, 327, 328

Norton, William, an early London printer of great note, 129

Norton, John, esq., Queen's printer in Latin, Greek, and Hebrew, a considerable donor to the Stationers' Company, and introducer of printing into Eton College; brief notice of, 141

Norwich, printing practised there by the Flemish emigrants in 1565, 192

Notary, Julian, an early London printer, 111, 112

Oldham, Mr., query as to the adaptibility of his method of wetting to the process of sizing paper, 223

Olympiads, two instances of the dates of books computed by, 83, but incorrectly, 84

"Ordinance" of the Star Chamber, concerning the printing, &c. of books, 170, 171; of parliament for the due printing of copies of the English Scriptures, 172

Origin of printing, investigation of, 1, *et seq.*; referred to the Chaldean bricks in the second age of the world, 1, 2; of block-printing, attributed to the Chinese, 19, 20; practice in Europe by "the two Cunio," in 1285, 20; but supposed to have been imported from China by the Venetians about 1189; of metal-printing, Archdeacon Coxe's opinion concerning, 43; in England [*see* Printing]

"Original and Growth of Printing," &c. title of a book which laid Caxton's claim of first English printer for a short time under suspicion, 75; proved to be a forgery, 78

Orthography, various and arbitrary, in the early specimens of books, 104

Orwin, Thomas, an early London printer, 140

Oswen, an early licenced printer at Ipswich and Worcester, 192

Ottley, Mr., reference to his work on wood-engraving, 18, 20, 22, 29; and to his "Early use of Playing Cards," 22

Owen [*see* Straban (Andrew) and Domville]

Oxford, progress of the art in, under Rood, 187; Hunt, De Worde, Scolar, Kyrfeth, Trevers, Cooper (a patentee), 183; Barnes, Litchfield, Short, Turner, Hall, 189; Clark and Crutterden, and S. and J. Collingwood, the present holders of the office, 190

Paging, a process in paper-making, 220

Palmer's History of Printing, a general reference to, on the subject of the Introduction of the Art into this country, 75, 78

Paper, previous substitutes for, amongst the ancients, and at present amongst some of the Eastern nations, *ib.*; the Egyptian the most ancient, 203; seems to have been in use in the time of Homer, 204; but not perfected till that of Alexander, *ib.*; its manufacture described, 203; in use among the Romans, 204. Paper from cotton succeeded to the former kind, about the 9th or 10th century, 204; still in use in the Levant, 205. Paper from bark anciently used for imperial protocols, 205; a particular one mentioned by Montfaucon, 205; a strong article made by the Japanese, from a particular species called the paper-tree, 206, 207; the manufacture of, from linen rags discovered in China, about A. D. 95; its earliest use in Europe about the beginning of the 13th century, 202; its various processes, 211; sorting, 211, 212; bleaching, 213; milling, 213, 214; bleaching in the engine, *ib.*; practice in smaller mills, 215; the vat, 215, 216; the mould, 216; the deckle, 216, 217; the felts, 217; the actual manufacture by dipping, 217; couching, 218; pressing, 219, 220; lifting, 220; paging, *ib.*; drying, with Mr. Bramah's improvement, 221; sizing, and tub-sizing, and sizing by machine, 222, and engine-sizing, 223; examining and dry-pressing, *ib.*; important improvements in the latter, by Bramah, 224, 226; Foudrinier's patent machine for wove paper, 227; still greater improvement in Didot's and Dickenson's machines, 228; brought forward in consequence of combinations amongst the workmen, *ib.*, which the eminent manufacturer, Mr. Whatman, was unable to control, 229. Deterioration of the article more recently by the fraudulent use of improper ingredients, 231, 235; the present book a sample of the best made paper, 235; straw-paper, 235, 236

Paper-mills, amazing acceleration of labour by the present mode of working at, 209

Papillon, reference to his wood-engraving, 18

Papyrus [*see* Paper]

Paragraphs, a distinction not observed in the earliest printed books, 104

Patent—of printer to the crown, first granted by

INDEX.

Henry VII. to Pinson, appears to have been shared by Faques, 111, 141; afterwards possessed by Berthelet, 115, 142; Rastell, as law-printer, 113, 142; Bankes, as printer of the Epistles and Gospels, 50, 145; with copy of the instrument, 145; Grafton, as printer of the New Testament, 148; copy of an instrument licensing him to print "books for divine service," *ib.*; to Anthony Malert to print a folio Bible, 120, 164; Reynolde Wolfe, to print for the King in Latin, Greek, and Hebrew, 121, 164; Seres, to print "all Psalters, Primers, and Prayer-books," 164; Jugge and Cawood, 165; copy of patent to the latter, 165; Tottel, for seven years, for books of the common law, 169; for music, to Tallis, Bud, and Morley, 173, 174, and to various others for different classes of printing; for law to Nicarius and Charles Yetsweirt and to Thomas Wright, 174. Origin of the existing Patent—Copy of the original instrument granting the privilege to Christopher and Robert Barker, 175, 178; traced through their descendants, or their assigns, to the present holder, 178, 182. Copy of the patent granted by George the Third, 182, 187; recapitulation of the dates, showing the termination of the present patent in 1829, 187; copy of the instrument confining the printing of primers, psalters, &c. to the Stationers' Company, by King James, 260, 266

Pennant, the topographer, his observation on the wealth of the Stationers' Company in 1666, 239

Pepwell, Henry, an early bookseller, usually regarded as a printer, 112

Persepolis, remarkable resemblance betwixt the engravings on columns at, and specimens of Chaldean bricks in the British Museum, 6

Pestel, a German professor, one of the earliest specimens of linen-rag paper in his possession, 208

Peter's, St., College; site of the second Stationers' Hall, 238

Petit, Thomas, an early London printer, 118

Petrus Mauritius, proof from, that linen-rag paper was in use in Europe in the 12th century, 207

Phœnicians, the origin of alphabetic writing, by some ascribed to them, 11

Philip and Mary, the original charterers of the Stationers' Company, as to printed books, 238, 246

Pinson, Richard, an early London printer, servant of Caxton, and printer to the countess of Richmond and her son Henry VII. brief notice of, 111

Pitt, right hon. Wm., his restrictions on the press traced to the prohibitory orders of the Star Chamber, 253; deprecated by Mr. M'Creery, 295; the consequences considered, 317, 320

Playing Cards [*see* Cards]

Pliny, his description of the Egyptian papyrus, or paper reed, 203

Polychronicon, a compilation of Caxton's, silent on the subject of the alleged expedition in quest of a printer, 76

Points, in early printing, confined to the colon and full-point, 104; the comma afterwards supplied by an oblique stroke, *ib.*

Ponsonby, William, 140

Powel, William, 125; Humphrey (the introducer of printing into Ireland), *ib.*; and Thomas, 129; early London printers

Press, not used in China in the process of printing, 19

"Press, The," a poem by Mr. M'Creery, 284, 297

Pressing, a process in paper-making, 219, 220

Prideaux, his opinion on the introduction of paper from linen into this country, 208

Printer's devil, general nick-name of a printer's boy, slight allusion to its possible origin, by Mr. M'Creery, 298; humorous ode to such an imputed personage, *ib.*—300

Printers and booksellers, their united resolutions on the subject of the "blasphemous and seditious libel bill," 321, 323

Printing, investigation of the origin of, 1 *et seq.*; practised antecedently to the making of books, and referable to the second age of the world, 1; Babylonian bricks, the earliest specimen of, 2, 11; theories on the subject, 3, 4; superior productions in clay, with engraved specimen, 8, 10; author's theory concerning, 10, 11; origin of alphabetic characters, 12, 13; the Sigean Inscription, the earliest specimen extant, 13, 14; a nearer approach to alphabetic printing in an ancient seal, 14, 15. Earliest practice of printing by wooden blocks, afterwards on moveable types, 16. The essence of the art necessarily known to the Romans, *ib.* The history of the art as connected with the idea of forming books, 17 *et seq.*; early history of block-printing, 18 *et seq.*; the invention attributed to the Chinese, *ib.*; mode of practising in that country, 19, 20; the earliest use of in Europe, by "the two Cunio," in a work on Alexander the Great, produced in Italy in the thirteenth century, 20, 21; great interval betwixt this and the next known application of engraved blocks, that of Playing Cards, 21; the art supposed to have been introduced into Europe from China, by the Venetians, 22. Brief notice of engravings on metal plates, which ultimately led to the practice of copper-plate printing, 22, 24. Earliest specimen of block-printing extant in a picture of St. Christopher carrying the infant Saviour, in possession of earl Spencer, 24. "The Annunciation" and "Martyrdom of St. Sebastian," an advanced stage of the art, 24. Original mode of wood-printing, by friction, still in use among engravers, 25, 26; but not adaptable to mixed work, 26; earliest engravings, 27; gradual progress in the art by the introduction of shading, 27; and dotted work, 28; recurrence to the old mode, 28; improvements introduced by Wohlgemuth, as exhibited in the Nuremberg Chronicle, *ib.*; and by Durer in "the Apocalypse," 28, 29. Rapid stride in the advancement of the art, from blocks to metal types, and comparative statement of its progress, 31. Books of Images, the first productions of book-printing; an eminent one in each class, *without* and *with* text, described in detail, with a fac simile of each from Horne's Bibliography, 33, 39. Printing with moveable types, *cut* in metal, practised in the year 1438; obscurity as it respects their inventor, and its supposed causes, 40, 41; its notoriety promoted by a singular incident, 42; examination of the claims made severally for Haerlem, Mentz and Strasburg, or of Gutenberg, Faust, and Schœffer, as the originators of metal-type printing, 42: decision of these claims, 47, 59; promulgation of the art on the taking of Mentz, 47; a single testimony on record that types were originally cast by Faust, *in brass*, 48; account of the invention as stated by Trithemius, 57, 58; survey of its effects by Archdeacon Coxe, 42; by Opmer, 60; its reception at Moscow related by Thevet, 62; its present state in Russia, 62; and in various parts of Africa, 63; sketch of its general progress, by Lemoine, 63, 65; eulogy of the art, by earl Stanhope, 65, 66; consideration of its advantages, by Luckombe, 70; favourable effects of the art in reducing the price, and improving the execution of books, 70; in dispersing the ignorance of the people and exposing that of the monks, 71; hostility of the popish clergy generally to the practice of the art, 72; its great efficacy in effecting the Reformation, 73

The origin of English printing latterly contested with Caxton, and on what grounds, 74, 75; decision in his favour, 77, 78, 79; proof elicited by the circumstance of the practice of printing in England, earlier than had been supposed, 79; a *Registrum Chartarum* at this time used for signatures; 81 *n*; first use of the latter, 81; found in Caxton's books which makes it probable that the date of "Exposicio Sancti Jeronimi" is incorrect, 81; list of books printed at Oxford before 1500. The *in-*

vention of printing in England, ascribed by Rood to this country, 82; and thus to Caxton, 84; practice of the art in London, by Letton and Machlinia, in 1481; further testimonies for Caxton as the English originator, 85, 88; with proof from his own works, 87; and more particularly that the "Recule of the Historyes of Troyes" was the first book printed by him, *ib. et seq.*

Brief history of Caxton, 91, 103 [*see* Caxton]; evident immaturity of the art in England in 1483, 95, 96; its progress in London to the year 1600, exhibited in a list of master printers to that period [*see* London].

The art introduced into Ireland, by Humphrey Powel, in 1551, 125; improved by Thomas Vautrollier, who fled thither in 1585. Considerations on patent printing, and on the first English Bibles, 158. Early ordinances, &c. respecting books, 170, 172; history of the present patent, 175, 187

Progress of printing in other parts of England. At Oxford, 187, 190; Cambridge, 190, 191; St. Alban's, York, Beverley, 191; Tavistock, Southwark, Canterbury, Ipswich, Greenwich, Worcester, Norwich, 192, 193; Moulsey, 193

Printing in Scotland—its earliest and most celebrated practisers noticed, 193, 198; in Ireland, 198; and abroad, 199, 201

History of the art as to its various adjuncts: Paper—its origin, and present manufacture including the improvements of Foudrinier, Didot, Dickenson, and Whatman, 202, 236

History of the Stationers' Company (the printers' guild). Charters and grants to the Company, 246, 250, 251, 252, 257, 260. Consideration, by Mr. Rowe Mores, on the granting of patents, as restrictions on the general body, 266, 268; revenue, government, and expenses of the Company, 268, 278; donations for gifts and pensions at their disposal, 278, 283

Poetical survey of the progress of the art, by Mr. M'Creery, in his poem, "The Press," given at length, 284, 297. Notes, containing notices of some celebrated printers, and a copious list of customs anciently, and till recently, observed in printing offices, 298—317; and observations and resolutions on the late prohibitory restrictions, 317—323. Addenda to the Poem, containing notices of some eminent, late, and living printers, 324—331

Prior, "Matt." excellent portrait of, in Stationers' Hall, 243

Proclamations against wicked and seditious books, 166, 167

Ptolemy Philadelphus, immense sums paid by him for autographs and originals, 69

Purfoot, Thomas, an early London printer, 132

Rastell, John, first printer of the Statutes, 113, 142; William, his son, an early London printer, noticed, 116

Raynalde, Thomas, an early London printer, 120

"Recule of the Historyes of Troyes," the first book printed in England, 87

Redman, Robert, an early London printer, brief notice of, 114

Registrum Chartarum, originally used instead of signatures to sheets, 81

Reynes, John, an early London printer, brief notice of, 115

Richardson, author of Pamela, his portrait in Stationers' Hall, 243

Riddel, William, an early London printer, 128

Rivington, Mr. Charles, succeeded Henry Kent, esq. as city printer, 139

Roberts, James, 133;—

Robison, Robert, *ib.*; *and*

Robinson, George, and Richard, *ib.*; early London printers

Rocchus, Pyrrhus, in an instrument, states the existence of cotton paper, in the year 1102, 206

Rogers, Owen, an early London printer, 129

Roman characters, not used in early printed books, 104

Romans, their near approach to the knowledge of printing, evident from a sigillum extant, and from their practice of branding, 31

"*Romans de la Rose*," [*see* Books]

Rood and Hunt, early English printers, prefatory verses published by them, ascribing the discovery of the typographic art to Jenson, and its principal improvement to the Venetians, 83; the former originally a printer at Cologne, 84; and perhaps of a book now in the Cambridge library, 85

Roxburghe Club, their resolution to erect a monument to Caxton, 98 *n.*

Roycroft, Samuel, succeeded Clarke as city printer in 1679

Ruddiman, an eminent scholar and early Scotch printer, brief notice of, 195, 196

Running-title, of books, omitted in the early specimens, 104

Russia, present state of printing in, 62

Rychard, a monk, and printer at Tavistock, in 1525, 192

Salisbury, Thomas, 140; and

Scarlett, Thomas, 136; early London printers

Schœffer, Peter, partner and son-in-law of Fust, supposed to have invented, or greatly facilitated, the art of casting metal types, 45, 47, 59. Enumeration of works extant under their joint names, 47. Schœffer's testimony given to Trithemius, in favour of Gutenberg's claims, as the inventor of printing, 58; and *see* Mr. M'Creery's poem, 290

Scoloker, Anthony, an early London printer, 125

Scolar, an early printer at Oxford, 183

Scotland, establishment of printing at, 193; no book extant of a date previous to 1500. 194; the art, however, known to have been practised there in 1507, *ib.*; and produced at intervals many celebrated books and printers, 195; of the latter, Davidson, Vautrollier, Ruddiman, the two Foulis, Uric, and William Gedd especially noted, 196, 198

Scriptures [*see* Bible, New Testament]

Seal, description of an ancient one, which exhibits a near approach to the present practice of printing, 14, 15; and seems to be the production of the higher empire, 16. Seal of the Stationers' Company, in 1634, fac-simile of, 241

"Sebastian, the Martyrdom of St." an early woodprint, an advanced step in the art of block bookprinting, 24

Seide, in upper Egypt, supposed by some to have originated the use of the Egyptian paper, 203

Seres, William, an eminent London printer, 124; privileged to print all Psalters, Primers, and Prayer-books, 164; his contest with the Stationers' Company, 164, 165

Serlls, Richard, 131;—

Shaw, George, 140;—

Shephard, John, 135; *and*

Short, Peter, early London printers, 138

Siberch, self-styled the first Greek printer in England, settled at Cambridge, 190

Sigean Inscription, the most literal specimen extant description, engraving, and translation of, 13, 14

Signatures to sheets, for which a *registrum char-*

INDEX.

tarum was originally employed, appear in an edition of Tully of 1469, seem to have been invented at Venice, and are noticeable in a work extant, where they begin in the middle of the book; their invention attributed to Anthony Zarot, 81

Silk, originally used in China as the material of books, 20

Simpson, Gabriel, 140;—

Sims, Valentine, *ib.*; *and*

Singleton, Hugh, 125; early London printers

Sizing, in the manufacture of paper, various modes of, 222, 223

Skot, 112; *and*

Smyth, Henry, 124; early London printers

Sorting, an operation preparatory to the manufacture of paper, described, 211, 212

Southwark, several early printers at, noted, 192

"*Speculum Humanæ Salvationis*," or "*Speculum Salutis*," an early specimen of printing, described in detail, with an engraving from Rev. Mr. Horne's "Introduction to Bibliography," 33, 37, 40

Spencer, earl, possesses the earliest known print from a wood-block, 24; and a copy of the celebrated "*Biblia Pauperum*," 36

Spilman, a German, erected the first paper-mill in England, 208

Spira, John de, appears to have been the first printer at Venice, 80; poetically alluded to in Mr. M'Creery's "Press," 291

Spottiswoode, Andrew and Robert, successors to the general business of the late Mr. W. Strahan, 331

Stamp, a remarkable one of bronze, with a Greek inscription, referred to as exhibiting a near approach to the knowledge of the typographic art, 15

Stanhope, earl, eulogy of the art of printing by, 66

Star-chamber, prohibitory regulations by, as to the general practice of the art, 252, 257

Stationers' Company, or text-writers, gave name to the various lanes, &c. about Pater-noster-row, 237; of great antiquity, *ib.*; not chartered till 1556, 238; although formed into a city guild in 1403, *ib.*: their first hall in Milk-street, *ib.*; removed in 1550 to a site on the south-west corner of St. Paul's, *ib.*; and about 1611 to their present site: slight notice of the former (Bergavenny) house: the new hall burnt in the general conflagration of 1666, 239; wealth of the company at this period, *ib.*; the new edifice partly rebuilt in 1668-9, *ib.*; view of the building, printed from the original block, op. 237; the hall occasionally lent to St. Martin's, Ludgate, for divine service, and for the feast on St. Cecilia's day, *ib.*; and generally for feasts and funerals; but refused for a non-conformists' meeting-house, 240; detailed description of the present hall, 240—246; first charter of the company, 246—249; and confirmation of it by queen Elizabeth, 250; important alterations in, by Charles II. 250, 251; annulled by William and Mary, and the original charter confirmed, 251, 252; copy of the grant, constituting the company a livery, 252; star-chamber decrees for the regulation of the press, 252—257; the source of Mr. Pitt's restrictions, 253 *n.*; another star-chamber decree, dictating the number of printers and founders, with list of the printers at the time, 257; list of books given to the company for relief of the poor, 258, 259; copy of king James's patent to the company for printing Primers, Psalters, Psalms, ABCs, &c. 260; observations by Mr. Rowe Mores, on the effects of the various patents, 266; capital of the company, and classes of stock-holders, 268; proportionate dividends, *ib.* 269; disposition of the share at death, 270; grant of lands in Ulster, one branch of the company's income, *ib.*; how it accrued, 271, 272; immense returns for the capital originally advanced, *ib.*; laudable conduct of the Drapers' Company in the management of their grant 273 *n.*; government of the company by a master, two wardens, the commonalty, 273, and "a court of assistants," *ib. n.*; their exorbitant power over authors, actually exercised, 274; account of Jacob Ilive's schism, *ib.*; and slight notice of its author, and his book, 275; succession and eligibility to the offices of the company, *ib.*; management of the trading concerns of the company; mode of annual election, 276; singular circumstances attending the appointment of renter-warden, *ib.* 277; expenses of the various annual dinners; list of donations and benefactions placed at the disposal of the company by Messrs. Lambe, Norton, Meredith, Sweeting, 278; Tyler, Parkhurst, Guy, Cater, Midwinter, Mrs. Wilkins, Messrs. Bowyer, 279; W. Strahan, 280; Wright, Johnson, Dodsley, Dilly, Mrs. Baldwin, Messrs. A. Strahan 281; Hansard, and Blackwell, 283

Statutes, first printed by John Rastell, Preface to the work from Luckombe, 142—145

Steele, sir Richard, portrait of, in Stationers' Hall, 243, 244

Stoughton, Robert, 126; and

Strafford, Simon, 141, early London printers

Strahan, William, his portrait in Stationers' Hall, painted by sir W. Beachey, 242: appointed king's printer, 331; sketch of his remarkable typographical career, 330

Strahan, Andrew, esq. king's printer, his portrait by Owen, in Stationers' Hall, 243; notice of him as a printer, 331

Strasburg, city of, a competitor with Haerlem and Mentz for the honour of having given birth to the art of printing, 42; so considered by Antonio de Bergel, 285

Straw-paper, manufacture of, 235, 236

Sutton, Henry, 129

Tallis, an early patent music printer, 173

Tavistock, printing practised at, in 1525, 192

Taylor, Mr. Arthur, the present city printer, appointed in 1823, 139

Theophrastus, his description of the papyrus or paper-plant, 203

Thomas, T., M.A., adopted the profession of printing, and was printer to the University of Cambridge, 191

Tilly, William, 126; *and*

Tisdale, John, *ib.*; early London printers

Titles formerly supplied by illuminors, 104

Tottel, Richard, an early patent law-printer, 124, 169

Toy, Robert, 120; Humphrey, 131; *and*

Toye, John, 116, early London printers

Trevers, an early Oxford printer, 183

Treveris, the first Southwark printer on record, 192

Trinity College, Cambridge, possesses the most perfect specimens of Babylonian bricks, 4; and a superior specimen of clay-printing, 8, 9

Trithemius (the abbot) stated by Mr. Horne to be the best author on the discovery of printing, 57

Turke, John, an early London printer, 127

Turner, an Oxford University printer, 189

Types, moveable *(typi mobiles)*, distinguished from engraved blocks *(typi fixi)*, 16; of wood, controversy concerning the use of, in the early stage of printing, 54—56; of metal, a single statement of their having been originally made in brass, 48; afterwards certainly of lead and iron, or tin, and latterly of lead and antimony, 55

Varro, his authority establishing the date of the perfection of Egyptian paper, 204

INDEX

Vat, use of the camel in the process of paper-making, 216, 216

Vautrollier, Thomas, an eminent printer of Paris who settled in London, and being engaged to the bar sinister, went to Edinburgh, where he another imported the art of the art in that town, 186; assigned his copy-rights to Thomas Bassandyne, 186

Vere, Jacobus, an early London printer, 126

Vinctorius, the art of block-printing supposed to have been brought from Asia by them, 22

Vinge, Walter, an early London printer, 126

Vinge, his alliance to the use of metals for making cuttle, a proof of the near approach of the Romans to the knowledge of printing, 81

Widegrave, Robert, 126

Wiley, John, an early London printer, 125

Ward, Roger, a stanch and successful opponent of the patentees, and of the queen's commissioners, tried before it, 137

Watkins, James, 139;—

Watkins, Richard, 128;—

Wayland, John, 119; and

Webster, Richard, 126; early London printers

West's painting of Alfred dividing his last loaf with a pilgrim, in Stationers' Hall, 242; print from, 243

Westminster Abbey, the chantry in, accommodated the first English printing-press, 64

Wheelon, Henry, affirms Caxton to have first imported the art of printing into England, 87

Whatman, an eminent paper-manufacturer, obliged to retire from business in consequence of the combinations of his workmen, 220

White, Edward, 127; and William, 140, early London printers

Whitchurch, Edward, esq. patent printer to Henry VIII, associated with Grafton; brief notice of, 118

Whittaker, a printer in gold with illuminations, now living, 314

Willet, Mr., his observations on the statement made to prove Coster the inventor of printing, 62, 64

William and Mary, king and queen, their confirmation of the original charter granted to the Stationers' Company, 261, 262

Williamson, William, an early London printer, 13

Winter, John, an early London printer, 125.. [illegible] 126

Wing, Tyton, [illegible] Vincent, [illegible] 18

Wishgrounds, the first successful practitioner of copper-plate, or etching, in the Stationers' Chronicle, 19; [illegible] of Albert Durer, 19; the art of painting, 19

Wolfe, Reynold, esq. an eminent printer and classical patentee, 12.. 16

Wolfe, John, esq. printer, 128.. [illegible] in opposition to the patentees and the Stationers' Company, 138

Women, [illegible] in the art of printing, 72

Woodcock, Thomas, an early London printer, 13

Wooden types [see Types]

Writing [see Antiquities; Writing]; gradually superseded on the invention of printing, 71

Wyer, Robert, 114; John, 115; and

Wykes, John, 127, early London printers

Wykes, Henry, an early London printer, 13

Wynkyn de Worde, an eminent early London printer, brief notice of, 107—110; engaged with Caxton, 107; whom he succeeded in his office as Westminster, ib.; printer to queen Margaret, ib.; his chemical productions of the press, and extreme skill in the profession, 109; first introduced Roman letters into England, 109; his numbers denoted by his colophons to have been 2. Fleet-street; his death in 1534, n.; extract from his will, 110 n.; surprising number of his typographical productions, and extract from one of them, ib. n.

Xylography, [see Block-printing, Engraving, Printing, Bewick, Hole]

Yardley, Richard, 126

Yetsweirt, Nicasius, and Charles, esq. early London printers, 125; the latter, French secretary and clerk to queen Elizabeth

York, an early seat of printing, 191

Zani [see Heineken]; spoken of with respect by Ottley, 20

INDEX.

PART II.

PRACTICE OF THE ART.

ABSTRACTS of various Acts relative to Printers and Booksellers, 932—939; viz. to prevent the increase of horse-races, 932; and of thefts and robberies, *ib.*; for the suppression of treasonable societies, *ib.*; exemption of the king's printer and the two universities, *ib.*; restrictions on founders and press-makers, *ib.*; directing the imprint, 933; exception for either house of parliament, *ib.*; directing the preservation of a copy of every thing printed, *ib.*; form of notice of keeping a press, *ib.*; for prevention and punishment of blasphemous and seditious libels, various enactments: as, for seizing the copies after conviction, 934; returnable in certain cases, *ib.*; mode of detention in Scotland, *ib.*; punishment by banishment on repetition of libel, 935; on failure of compliance within 30 days, to be deported to any place at his Majesty's pleasure, *ib.*; if found in this country 40 days after, to be transported for 14 years, *ib.*; subjecting certain publications to stamps, &c. *ib.*; regulating the size of paper to be considered a sheet, 936; excepting the wrapper, *ib.*; news pamphlets, &c. of oftener publication than once in 26 days, fixed as to time of publication, *ib.*; price, date, &c. of the work to be printed conspicuously, *ib.*; excepting the trade-allowance, *ib.*; directing recognizances to be taken for political pamphlets and newspapers, 937; delivery of copy to commissioner of stamps, *ib.*: the enactment extended to all political publications, whether periodical or not under two sheets, and within six days, 938; against the sale of unstamped works of former description, *ib.*; power on taking bail to require the future good behaviour of the party bailed, *ib.*; provision that penalties do not exceed £100 per day; two justices may determine offences, *ib.*; exemptions in respect of government, and some commercial works, *ib.*; enactments not to extend to re-prints, *ib.*

Accented letters, specified, 428; marked consonants sometimes included in the term, *ib.*

Account-books for printers, observations on, and specimens of the best form, 756—761; viz. compositors' books, 757; pressmen's, *ib.*; warehouse, *ib.* 758; receipt on return of any thing, *ib.*; the "Work Journal," 759; with general directions, 760; form of the book; 761

Ackermann, Mr., of the Strand, patron of M. Senefelder in the practice of lithography, which he succeeded in establishing in this country, 888; subsequently published specimens by Mr. Hulmandel, and by other English artists, 907

Acts [*see* Abstracts]

Advance in price of compositors' labour, scale of, 751

Alexandrian Greek, matrices of these characters, cut by Jackson, under direction of Dr. Woide for the celebrated Codex Alexandrinus, 402; some account of this celebrated MS.; curious mis-statement as to the originator of the types, *ib.* 403

Algebraical signs [*see* Mathematical Signs]

Andrews, Robert, an early type-founder, statement of his foundry, 343

Andrews, Mr. Silvester, son of the above, also a type-founder, 345

Antiqua, the name given by the Germans to the Roman character, 368

Apostrophe, the powers and typographical uses of, 440

Applegath and Cowper, patentees of the cylindrical inking apparatus, 623; Mr. Forster's successful competition with them, *ib.*

Applegath's, Mr., steam-printing machine, 697, and *n.*; his patent improvements in, 703; his patent mode of stereotyping, by taking a mould in metal made semi-fluid, 879; the principle said to have been adopted long since in Scotland, and certainly practised in France 30 years ago, *ib.* 880

Arabic, the first type of, cut in England by Mr. Caslon, 348; matrices yet remaining, 399, 401; and *see* List of Matrices, &c. 399, and 402 *n.*

Arbor of a Stanhope press [*see* Bar-handle]

Arding, Mr., noticed as a press-maker, 796; and the best fitter-up of printing-offices, 806

Armenian type [*see* List of Matrices, &c.], 139

Asterisk, its use, 431

Astronomical and celestial signs, explanation of, 464, 465

Austin, type-founder, 361; cut most of Millar's, Wilson's, and Stevenson's founts, *ib.*

Authors, hints to, on the preparation of their copy, 745; and on the mischief of delay in returning proofs, 753

Bacon's printing machine, description of, 699—701

Balls, implements of press-work, described, 414; their use almost superseded by rollers, *ib.*; directions for making those of pelt, 600, 601; parchment balls for colours, 603

Ball-knife,—*and*

Ball-nails, what, 925

Ball-racks,—*and*

Ball-stocks, engraving and description of, 572

Bank and horse, at press, description of, 574, 925

Bar, handle, and catch, of a common press, description and engraving of, 560, 561; arbor and coupling bar of a Stanhope, 639: bar-handle and lever of a common press Stanhoped, 648

Barclay, patentee of a press of foreign invention, 663

Barton, a living type-founder, 361

INDEX.

Baskerville of Birmingham, a celebrated type-founder and printer, estimate of his merits, 355—[*see* Part I]; his superiority in the manufacture of ink, 717, 718; recipe for its composition, 722, 723

Beard of letter, explanation of the term, 925

Bearer, at press, what, *ib.*

Beating or rolling, at press, directions for, 588—590

Beaumarchais, M. de, purchaser of Baskerville's foundry for a society in Paris, 355

Bell, Mr., publisher of the British Theatre, the first who discarded the long f in printing, 393, 611

Bensley, Mr., original patron of M. Konig in the completion of his steam-printing machine, 694; description of his own machine, 696, 697

Bessemer, of Charlton, type-founder, 361

Bessimer, letter-cutter, engaged to execute a fount to rival M. Henri Didot's amazingly small type, 382

Biddell, an early type-founder, his Greek matrices in the possession of Fry and Son, 402

Bill, a founder's (with previous observations, 393) order for a fount of Pica, 800 lbs. weight, 396, 397; Canon, 20-m Bill, 398

Bite, in press-work, what, 925

Black, the technical term for the old English character, 334; similar character still in common use in Holland and Germany, 367; an elegant medial character used in Naples, in 1465. Note on the original and modern blacks, 404. [And *see* Matrices]

Blackwell, the first public improver of the manufacture of ink, 715, 717

Blaew, William Jansen, first improver of the press, brief notice of, 550, 551

Blake, Garnett, and Co., Sheffield founders, purchasers, in 1819, of the foundry of William Caslon, jun., 355

Blankets for the press, directions for their choice and application, 580, 581; 925

Boards, letter-, for composition, description of, 481, 482

Bodkin, a necessary implement to a compositor, 486

Body of a letter, what, 925

"Boetius," a production of Caxton's, with type, 337

Books (technically), the printed sheets as soon as dry; process of collating, 771; folding, 772; counting out and pressing, 774—776

Book-binding, formerly a branch of the printing profession, 334

Booking the gatherings, process of, 776, 777

Booksellers [*see* Printers]

Bottle-arsed, explanation of the term, 925

Bottom-line, what, *ib.*

Bourgeois type, its place in the classification of types, 378; specimen of its size, containing remarks on its origin and foreign names, 381; formerly considered an irregular size, 383; but now in very common use, 384

Bower, Bacon, and Bower, type-founders of Sheffield, 361

Bowyers, effective encouragement given by the descendants of this family successively to that of the Caslons and their successors, 360 *n.*

Braces, commonly of metal, but much superior when made of brass, 444; their uses, *ib.*

Bramin type [*see* Matrices]

Brass rule, in composition, description of, 486, 487; directions for dressing and piecing, 442

Brayer and slice, implements at press, engraving and description of, 574, 925

Break, in composition, what, *ib.*

Brestkopff and Hartel, type-founders at Leipsig, matrices of their German and Russian founts in the possession of Thorowgood, 403

Brevier type, its place in the classification of types, 378; specimen of its size, with remarks on its English and foreign names, 382; its proportionate price formerly in composition, 779

Brightly, Mr., originally a school-master, afterwards a printer, and author of a book on stereotype, 837 *n.*; his directions as to the form of the type in stereo-casting, 846; his work done principally by females, *ib.*; account of his printing machine, 699

Broadside, what, 925; prices of, in composition, 783; and at press, 789

Broken-letter, what, 925

Brown, Mr., patentee of a press never used, 653

Brunel, Mr., of Chelsea, inventor of the latest improvement in stereotyping, for intended application to newspapers, 880—883

Buchanan, the late Rev. Claudius, a Persian and several Syriac types cut, by Figgins, under his direction, and in part at his expense, 403

Bulk, compositor's, view of, 408

Bulmer, Mr., his excellence as a printer and ink-maker, 717—719; specimen of his fine-work noticed, 718, 719; probable plan of manufacturing his ink, 723

Bur, in casting, what, 925

Byddle, an early English printer, his device, *App.*

Bynneman, an early type-founder, the matrices of his Ethiopic, Greek, and numerous Hebrew founts now in the possession of Fry and Son, 402

Ç, (cedilla) direction to form the character, 428

Cambridge, University of, purchased the art of stereotype from Mr. Wilson, 824

Camus, M., numerous extracts made by Mr. Hodgson from his "Histoire de Stéréotypie," 817, 818

Cap of the press, description and engraving of, 555

Capitals (letters) restricted use of, in the present day, 426; mode of designating in MS., *ib.*

Cards, at press, what, 925

Carez, Joseph, a French printer, his successful method of stereotyping, remarkably resembling a mode now practised in this country, and lately made patent, 873, 874

Carriage and ribs of the press, description and engraving of, 562, 563

Case, taken as the technical term for the whole department of a compositor's business, 547, and *see* Composition; plans, &c. of cases, and their usual contents, 426, 480 [*see* Cases]; including leads, with engraving and explanation of the author's economical and expeditious cutting machine, 447—452; alphabets and observations to facilitate the composition of Greek and Hebrew, 455—460; relative proportions of type, 461, 462; casting off MS. copy, 462—466; observations on the operation of composing, 466—468; more ample explanation and use of the several materials necessary to composition, as—the frame, galley, and imposing-stone, 481; letter-boards, *ib.* 482; furniture, quoins, reglet, scaleboard, &c. and side-stick, *ib.*; and gutter, with engraving of each, *ib.* 483; quoins, with engraving, 484; chases, with engraving of one for peculiar use, 485; shooting-stick, *ib.*; with engraving of a peculiar kind, 486; planer, shears, sponge, bodkin, page-cord, *ib.*; brass rule, *ib.*, 487; composing-stick, 487, 488; preparatory process of laying cases, 489; distributing, including the laying-up of the forme, cautions on the drying of the letter, 490—492; the operation of composing, strictly so called, or the gathering of the types, explanation of, with general directions, 493—504; schemes of imposition, 505, 532;

tying up the page, 533; emptying the galley, 533, 534; process of imposing, 534—540; correcting, 745—747; form of account-book for, 757; charges by the workmen, and by the employer—[*see* Prices]

Cases, the compositor's upper and lower, explanation and view of, 406, 407; consideration of their contents, viz. capitals, 426; small capitals, 427; accents ç, ü, w, 428; numerals, 429; figures, 429, 430; scratched and dotted, 430, 431; references, 431, 432; lower-case letters, 433; points, 432—437; the hyphen, 437—439; parenthesis and crotchet, 439; apostrophe, 440; quadrats, 440, 441; spaces, 441; rules, 442; metal rules, 442, 443; space rules, 443; braces, 443, 444; superiors, 445; fractions, 445, 446; quotations, 446; two-line letters, 447; flowers, *ib.*; mathematical, algebraical, and geometrical sorts, 452, 453; celestial and astronomical signs, 454; medicinal signs, 455; view of, as laid on the old plan, with the double letters, 469; cases as now used, the long f and its connexions being thrown out, 470; fount cases, 471; Greek cases, 472, 473; upper cases for Hebrew with points, 474; lower case for Hebrew without points, *ib.*; lower case for Hebrew with points, 475; Stanhopean plan for cases, with new logotypes, 476; his lordship's remarks on this plan, 476, 477; further description and observations, 480; mode of laying, preparatory to composition, 489; plan of cases for Caslon's new script, 930, 931

Cases in the Privy Council, prices of composition for, 784

Caslon, William (1), an eminent type-founder, the renovator of the art in this country, brief sketch of his life, 348—351; originally an engraver, 348; accidental notice of his work by Mr. Watts, an eminent printer of the day, and subsequent patronage by him of Caslon, *ib.*; his first attempt in the celebrated Arabic fount for the Christian Knowledge Society, *ib.*; incident which directed his attention and gave him encouragement to execute a fount of Pica roman, 349; its superiority to the productions of the time, *ib.*; loss of his late patronage in consequence, *ib.*; accession of assistance from other quarters, and his complete success, *ib.*; his extreme perseverance and industry, *ib.*; the importation of types put an end to, 350; the almost universal adoption of his, *ib.*; his works remain unrivalled by the entire productions of any founder since his time, *ib.*; his general amiable character, *ib.*; his honours, and his death, 351; was thrice married; his family, *ib.*

Caslon, William (2), little more than the inheritor and transmittor of his father's property, at his death divided among his widow and sons, 352; extract from a memoir of Hoffman, published by him, describing the composition used as the material for his stereotype moulds, 873

Caslon, William (3), the eldest son, joint-proprietor and for some time superintendent of the concern, *ib.*; which however received no sensible augmentation under his hands; afterwards disposed of his share to his mother and brother, *ib.*; and purchased Jackson's stock, 353; removed to Finsbury-square (Lackington's), and again to Dorset-street, 354; his great improvements in the ornamental branch of the art; his living character, *ib.*; in 1807 relinquished business to his son,

Caslon, William (4), formerly associated with his father, 353; inventor of the pierced matrices for large type, *ib.*; his concern transferred to Messrs. Bower and Bacon, *ib.*; high estimation of its value, *ib.*

Caslon, Henry (1), son of William Caslon (2), joint-proprietor with his mother, 352; at his decease the share divided betwixt *his* widow and son, 352; the property sold on the death of William Caslon (2)'s widow, *ib.*; and became the sole property of

Caslon, Mrs. Henry; began to cut new types, *ib.*; her Pica an improvement on Bodoni's, *ib.*; associated with herself, Mr. N. Catherwood, *ib.*; character of the foundry retrieved in 1808; her protracted illness and death, 353; followed rapidly by that of Mr. Catherwood, *ib.*; the property inherited by

Caslon, Henry (2), (sometime associated with Mr. John James Catherwood) under whose active superintendence the concern has re-attained the highest reputation, 353; its stock greatly augmented, and the conduct of its internal affairs further secured by the new partnership of

Caslon and Livermore, the present firm, 353; who are thus in joint possession of all the types remaining from the old English founderies, except only the collection of Mr. James, 347; specification of their matrices for founts of peculiar character, 399—401; with illustrative remarks, 401, 402; specimen, with plan of cases for their new script, 930, 931

Cassie paper, what, 925

Casting off copy, directions for, 462—464; plan proposed by Luckombe and Stower, 465, 466

Casting up work [*see* Types]

Castlereagh (late Lord), his restrictions on printing traced to the decree of Star-chamber, 339

Catalogues, booksellers, price for composition of, 783

Catch of the press [*see* Bar]

Catch-line [*see* Direction-line]

Catherwood, Nathaniel and John James, associated with the Caslon family in type-founding, 353

Cawood, an early English printer, his device, 922

Caxton, description of his type generally, 334; as exhibited in his several works, 335—337; "the Boke named the Royall," not his printing, 336; his press-work fully equal to the best of the present day, 337; matrices of one of his blacks in the possession of Messrs. Fry and Son, 401—404; engraved view of the marks affixed to his publications, *op.* 921

Celestial signs [*see* Astronomical Signs]

Chases for imposition, view of one in wood engraving, 408; described, 411 *n.*; more particularly, 484, 485; engraving and explanation of one for works of very large dimensions, invented by the author, 485; directions for dressing, 411, 412—535, 536; a peculiar sort requisite for stereotype-work, 847

Cheeks of the press, description and engraving of, 553

China, mode and specimen of printing in, 19, 919; shown in its several stages in the library of the East India Company, 920

Choke, at press, meaning of the term, 925

Church, Dr., an engineer, detailed description of his inventions and chimeras relative to printing, 665—680

Clean proof, the term explained, 925

Clicker [*see* Companionship]

Close matter, what, 925

Clymer [*see* Columbian Press]

Coffin, Plank, and Cramps, description and engraving of, 566, 567

Cogger's press, description of, with engravings, 653—655; the latter exhibits a strong proof of the superiority of India paper for working wood-engravings, 918

Colby, late of Shacklewell, his improved press for lithography, 904

Cold-pressing more adaptable to a printing-office than hot-pressing, 799, 800

Collating books, 771, 772

Collins's Ode to Mercy, subject of, an unsuccessful specimen of decorative printing by Mr. Savage, 915

INDEX.

Colon, the point, now generally disused, 436

Colours, method of mixing and grinding with varnish, for ink, 603, 604

Columbian press, Clymer's, engraving and description of, 655—657

Colwell, late partner, and successor to Mr. Blackwell, in the manufacture of ink, 733

Comma, the point, general and typographical uses of, 435

Companionships formed for expediting parliamentary and similar works, observations on, including rules respecting taking copy, 543; making up letter and furniture, 545; distributing letter, 545, 546; correcting, 546, 547; and transpositions in imposing, 547; regulation of companionship, the duty of an overseer, 706

Compo, abbreviate term for the composition with which rollers and balls are now made, 623; method of preparing, 624

Composing-stick, its description and use, 409, 487, 488

Composing, strictly, as the collecting of types, process of, summarily described, 409, 410; observations on, 466—478; detailed directions for, 493—504; precaution as to measure, 493; best method of attaching the type, 494; uniformity in spacing, 495; overrunning in the stick, 496; making up the page, *ib.*; setting notes, and miscellaneous observations to, 505

Composition, the first great division in the art of printing, summary view of, 406; the cases, 406, 407; the frame, with bulk, galley, and chase, 408, 409; process of composing, 409—411; imposing, 411, 412; correcting, 413—[and *see* Case]

Compositors, rules for their observance, 738

Compositor's Account Book, form of, 757

Congreve, sir Wm., his printing machine, 705—708

Cooper and Millar, patentees of the "British and Foreign Press," 702, 703

Cope, Mr., description of his new-invented Press, 683

Copland, the elder, his two-line Great Primer fount noticed, 337

Copper-plate printing, description of the process, with general observations, 801—805

Coptic type [*see* Matrices]

Copy, expediency of the clear and correct preparation of, 745

Correct, the term explained, 925

Correcting, a process in composition explained, 412; in a companionship, 546; described in detail, 745; author's alterations, compositor's and master's charge for, 783—793

Corrections, what, 925

Cotterell, partner and successor of Mr. Jackson in his type-foundry, first caster of large type, 359

Counting and pressing books, the process of, 774—776

Coupling-bar of a Stanhope press [*see* Bar-handle]

Cramps of the press [*see* Coffin]

Crosses of a chase, pointed out in engraving, 408, 409

Crotchet [*see* Parenthesis]

Cup and piston of a Stanhope press, engraving and description of, 641, 642

Cutting up furniture [*see* Furniture, 535, 536]

Dabbing, in stereotyping, method and use of, 856

Dagger, its use as a mark of reference, 431, 432; sometimes used in early books for the square cross, 432

Day, an early printer and founder, the first who cut and used the Saxon character, 337, 401; his device, *op.* 921

Decorative printing, detail of its mode, its failures and successes, 911—918; its revival by Mr. Savage, 911; its two-fold object, *ib.*; the 1st, the chiaro oscuro first produced by Ugo da Carpa, *ib.*; the 2nd, as proposed by Mr. Savage, to give facsimiles of drawings, 912; the plan probably adopted from Papillon, *ib.*; the general process, by means of numerous blocks, *en suite*, described, 912; the early decorations, as illuminations, &c. of early printing, referred to the same mode, 912, 913; specimen by the author, given to show an equal effect from stereotype, 913; but superior decoration in the coloured style, even in early times, undoubtedly produced by the hand, *ib.*; great superiority in this branch of the art, in its very first practisers, *ib.*; description of some of Mr. Savage's specimens, *ib.*; necessarily executed under the eye of an artist, 914; inquiry as to the probable benefit of the restored art, 915; computation of proportionate expense with regard to one, a *chef-d'-œuvre*, *ib.*; absolute failure of this specimen, the "Mercy," as a pictorial execution, *ib.*; proportionate relief to the eye in the complete success of the "Despair," printed in one colour, 916; splendid effect, but enormous expense, of an illuminated letter of Mr. Savage's, printed on blocks, *ib.*; detailed observations on India paper, as principally applicable to decorative printing, 916—918. [*See* Paper]

"Despair, Cavern of," subject of a most successful specimen of decorative printing, by Mr. Savage, executed on the common principle of a single block, 916

Devices [*see* Monograms]

Devil [*see* Printer's Devil]

Diamond type, its place in the classification of types, 378; specimen of, with remarks on its actual value, 382; surpassed in diminutiveness by a type since cast in France, 382; its general application

Dictionaries, specific charge for the composition of, 780

Dibdin, reference to his remark on Rev. Mr. More's work, 333; to his description of Caxton's works, 335

Didot, M. Firman, the celebrated French printer, by some supposed the inventor of stereotype, 820; his application of it to logarithmic tables, 844; but said, by Mr. Hodgson, to have been only a renewal of the principle of Van der Mey, or that of soldering, 845

Didot, M. Henri, publisher of the smallest type actually in use, 382; his type probably the original of our ill-advised sharp lining type, 617

Direction and Direction-line, 926; [and *see* Signature]

Distributing, in composition, the great importance of attention to stated and specific directions, to acquire expedition and correctness in the practice, 490—492; distributing in a companionship, 545

Division of the same work among divers printers necessarily destructive of uniformity and typographical effect, 394 *n.*

Division of words, observations on and rules for, 437—439

Domesday type [*see* Matrices]

Donkin, Mr., constructor of Brightley's printing machine, 699; and of Bacon's, 699—701

Dotted figures [*see* Figures]

Double, in composition, what, 926

Double canon, or Imperial, a French and German type, 378

INDEX.

Double dagger, mark of reference, 432

Double letters, originally very numerous, but now only used from necessity, 392; the ff abolished by Mr. Bell, *ib.*; subsequent alterations in, by lord Stanhope, and for what purpose, *ib.* 475—480; general reflections on the use of ligatures, 392, 393; arrangement of cases on the respective plans, 469, 470

Double pica, an original size of Caxton's type, 334; its place in the classification of types, 378; specimen of it, 379; an irregular size, 384

Dressing the chase, meaning of the term, 926; and [*see* Chase]

Driving out, what, 926; sometimes necessary in composition, 413

Drying-room, fitted up by the author, on a new and superior plan, 806—808

East India Company, fount of Télegó type cut by Figgins from MS. in their possession, 403; blocks preserved in their library, exhibiting the various processes of printing in China, 920

Eighteens size, various modes of imposing, 512—516; extra charge for imposing, 782

Elzevirs, matrices from their Greek type in the possession of Wilson at Glasgow, 404

Empty press, meaning of the term, 926

Emptying the stick, directions for, 411; galley, 533, 534

Encyclopædia Metropolitana [*see* Scott's Bible]

English type, Caxton appears to have had two founts of this size, or of pica, 334; its place in the classification of types, 358; supposed origin of its German and Dutch names stated in a specimen of the type itself, 380; its former proportionate price in composition, 779

Engrossing type [*see* Matrices]

Errata that have passed the reader's notice, to be inserted at the end of the book, 413; formerly corrected with the pen, *ib.*

Ethiopic type [*see* Matrices]

Etruscan type [*see* Matrices]

Evans, Mr., of Pall Mall, his assistance to the author to trace fac-similes of Caxton's types, 335

Even pages, distinction of, 926

Exclamation, note of, its power in a sentence, 436; sometimes mistaken for interrogations, 437; practice of the Portuguese to prevent this, *ib.*

Expediting works [*see* Companionship]

Fac-similes, of early typography, very unfaithfully executed by plates, 335; correct ones given from wood of Caxton's types, 335; of the character of Doomsday Book, accurately cast by the late Mr. Jackson, 358; of the types of the latter, re-cast faithfully by Mr. Figgins.

Faques, William, an early English printer, high character of his types, 337; his device, *op.* 921

"Fayttes of Armes and Chyualrie," one of Caxton's productions with metal types, 336

Fat-face, or fat letter, what, 926; prevalence of, in late works, 355; introduced by the late Mr. Thorne, 360

Fat-forme, *and*

Fat-work, explanation of the terms, 926

Feet of the press, description and engraving of, 552

Fell, bishop, his foundry at Oxford, 342, 344

Fergusson, James, his proposed plan for fixing the size of the various types, 388, 389 *n.*

Fifield, one of the four exclusive founders appointed by Star-chamber, 338

Figgins, an eminent living type-founder, brief notice of, and estimate of his productions, 360; specification of his matrices for founts of peculiar character (in list of Matrices), 399—401; with distinct notices of some of them, 403

Figures (arithmetical), great care essential in casting them, 429; ineligibility of the present fashion of lining figures, 430; italic figures formerly in use, 430; scratched, used in calculations of division, 430, 431; their use formerly in decimal calculations, 431; dotted, used in the arithmetical process of division, *ib.*

Fine printing, general consideration of, 609—621; the first impulse to, in this country, given by Baskerville, 609; followed by Ritchie (of whom a brief sketch and engraving), 610, 611; Bulmer, Bensley, M'Creery, 611; and in small type by Messrs. Rickaby, Whittingham, and Corrall, 612; obstacles to excellence arising from the misdirected efforts of some type-founders and wood-engravers, 613—615; from the climate, &c. of this country, 615, 616; but principally from the prevailing mode of paper-making, 616; and the extravagance of the ruling taste, 616, 617; now subsiding into that of real proportionate elegance, 617, 618; specimen of monstrosities in type yet in use, 619; general directions for producing fine-work, 620; a point acknowledgedly less important than that of the extension of the labours of the press, 620, 621

Fines, the practice of imposing for neglects, &c. of workmen, discommended, 740

First forme, the distinction explained, 926

Fitzgerald, Dr., Hibernian fount cut by Mason from his MS. for bishop Bedel's Bible, the matrices now in the possession of Fry and Son, 403

Fly, at press, what, 926

Flowers, ornamental type, formerly of great estimation, now almost disused, 447

Folding for books, the process of, 772—774

Folio, size of pages, schemes of imposition for, 505

Follow, a term in frequent use, explained, 926

Foot of a page, what, 926

Foot-sticks, their disposition in imposing, 412

Fore-stay of the press, description and engraving of, 564

Foreign names of the various sizes of type, 378

Foreign works, price for in composition, 780

Fork and Hook of a Stanhope press, engraving and description of, 644

Forme, in composition, 412, 926; explanation of the term, and of planing down, 412; directions for making ready at press, 581—588

Forty-eights size, various schemes of imposition for, 526—528; charge for imposing, 782

Forties size, scheme for imposing, 525

Foster, Mr., ink-maker, 733; and the first who applied the material of the Staffordshire dabbers to the process of inking, 623; the claim contested by Mr. Harrild, 630

Foul-proof, the distinction explained, 926

Fount of letter, what, 405, 926; list of sorts necessary to complete, 390, 391; divided into upper and lower case sorts, 426

Fount cases, plan of, 471; observations on the use of, 489

Fournier, "by birth, education, and profession, a letter-founder," 347; valuable writings of his on printing, &c. *ib. n.*

Fractions, in arithmetic, seldom kept in more than two sizes, 445; their chief point of excellence, *ib.*

Frame for composition, engraving and explanation of, 408, 480

French type (exclusive) Grosse Nompareille. Dif-

ference in the published scale of French types and their sizes as exhibited in books, 382; prices of, *ib.*; their manifest inferiority to English, 383; except only their fancy types, and one specimen of script, *ib.*

French Canon type, its place in the classification of types, 378; size, 379; its invention and original application, 379, 380

Friar, a technical term at press, explained, 589, 629, 926

Frisket of the press, engraving and description of, 571, 572

Fry and Pine, originators of the foundry now carried on by Fry and Son, 356; estimate of its merits, *ib.*; specification of their founts of peculiar characters (in list of Matrices), 399—401; distinct notices of several of them, 401, 402

Fudge, in typography, explanation of the term, 926

Full forme, what so called, 926

Full point (period), its typographical uses, 436

Full press, the term explained, 926

Furniture, necessary to dress the chase for imposition, 411, 482; a peculiar kind required for stereotyping, 847, 848

Fust and Gutenberg, the earliest printer [*see* Part I.] acknowledged to have attained to greater perfection in decorative printing, than all their successors, 913

Galley, in composition, view of, in the plate, 408; its use, 411; more particular description, 481; directions for emptying, 533, 544

Gallows and sockets of the common press, description and engraving of, 568; gallows of a Stanhope, 645

Garter [*see* Hose]

Gathering, in the warehouse, 770

Gatherings [*see* Booking]

Gatteaux and Aufry, their mode of stereotyping by sinking the type into a bed of cold metal, 877; another, of striking with hot metal, 878; a third, by casting the types, in their shape as printed, *ib.*; evident impracticability of this mode, 879

Ged, Mr., of Edinburgh, originally a goldsmith, 822; the undoubted inventor of stereotype printing, 820; some particulars from his 'Memoirs,' by Mr. Nichols, 821; failure of his first joint attempts with a timid printer, *ib.*; his engagement with Messrs. Fenner and James, *ib.*; their licence from the University of Cambridge to print Bibles and Prayer-books, rendered nugatory by the base treachery of one of the partners, 822; consequent failure of the scheme, *ib.*; subsequently returns to Edinburgh, where specimens of his art were published, *ib.*

Geometrical signs [*see* Mathematical Signs]

German text character [*see* Black Matrices]

Germany, composition of type metal in, 371

"Get in," in composition, explanation of the term, 927

Giving out paper, 763

"Glasgow Homer," Greek fount for, cast by Wilson, 403

Glue, an ingredient in the *compo* for rollers, 624

Godfrey, an early English printer, his device, *op.* 921

Good colour and good work, at press, what, 927

Goring, an early type-founder, 342

Gothic type [*see* Black Matrices]

Grafton, an eminent early English printer, his device and motto, *op.* 921

Grammars, Spelling-books, &c. specific charge for the composition of, 782

Great Primer, Caxton had three founts of this size, 334; its place in the classification of types, 387; its size, foreign name, and original application, 380; price in composition, 780

Greek, the composition of, 782, 783; the most usual peculiar character in English composition, 455; immense number of characters formerly used in contractions and ligatures, *ib.*; now universally exploded, *ib.*; some few both ornamental and useful, 456; the alphabet exhibited in Porsonian Greek, *ib.*; rules for placing the accents, 457, 458; Greek points, 458; charge for the composition of, 782, 783

"Grek Abrégement," the name of the work in which the secretary character was last used, in 1534, 337

Greek cases [*see* Cases]

Greek types, first cast by the Italian printers, in 1467 [*see* Matrices]

Griffiths, Mr. Vaughan, an ink-maker of the present day, 733

Grismand, one of the four exclusive founders appointed by Star-chamber, 338

Gros Double Canon, or Imperial, a type used only in France or Germany, 378

Grosse Nompareille, the name of a French type, 378

Gowers, Thomas and John, early type-founders, 342

Gutenberg [*see* Fust]

Gutter-sticks, constituent parts of furniture, their disposition in imposing, 411, 412; their material and construction, as used by the author, 482, 483; wood-engraving of, 483

Gypsum, or plaster of Paris, an essential material in the common process of stereotyping, 848; directions for the preparation of, 849, 850, 855; application to the type, 856

Hair spaces, their explanation and use, 410

Half-press, the term explained, 927

Handle of the press [*see* Bar]

Hanging up paper, 767

Hansard, Luke, Esq. his invention to facilitate the working in red, 603

Harrild, Mr., competitor with Mr. Foster in the claim of having originated the composition rollers, 630

Head, Mr., an early type founder, 344, 345

Head of the press, description and engraving of, 556, 557; directions for justifying it, 578, 579

Head-bolt of the press, 557

Head-line, a term in composition, explanation of, 411

Head-page, 927

Heads and signatures, included in the measurement of the page, in 1793, 779

Heap, at press, what, 927

Heap holds out, explanation of the term, *ib.*

Hebrew cases, [*see* Cases]

Hebrew type [*see* Matrices]. The alphabet, with letters of resemblance, and finals, 459; the vowel points, 460; charge for composing, 782, 783

Hibernian type [*see* Matrices]

Hodgson, Mr., of Newcastle, a printer, and author of an excellent 'Essay on Stereotype Printing,' 817; detail of his calculations on the comparative expense of printing from stereotype and by the usual mode, 838—842

Hoffman, François Ignace Joseph, the originator of stereotype in France, 872, 873; extravagant attempt of his to supersede the ordinary mode of composition in reference to stereotype, 875

INDEX.

"Holds out," explanation of the term, 927

Holland, types imported from that country in the beginning of the 18th century, 347, and continued much in use till the establishment of a foundry by William Caslon, 348

Hook of a Stanhope press [*see* Fork]

Hope, Mr., patentee of a press as yet in little use, 663, 664

Horne, Rev. T. H., incorrectness in his specimens of Caxton's type, and how occasioned, 336

Horse, at press, 927 [*see* Bank]

Horse, the general term, explained, 927

Hose, garter, and hose-hooks, of the press, description and engraving of, 558, 559

Hose-hooks [*see* Hose]

Hot-pressing, an operation undertaken by printers, mode of, 799; now generally superseded by cold-pressing, *ib.*; charges for, 800

Hours, the mode of computation by, at press, explained, 927

Hughes, an incipient type-founder, 361

Hullmandel, an eminent practiser of lithography, 888; his re-publication of M. Raucourt's work, quoted, 889; extent of his capabilities in the practice of the art, 899 *n.*

Hundred and twenty-eights size, scheme for imposing, 532

Hydraulic press for cold-pressing after working; description of, 799; has nearly superseded hot-pressing, 800

Hyphen, laws of the use of, 437—439

Ilive, Mr. Jacob, printer and letter-cutter, 346; his singular character, *ib. n.*

Imperfections of letters, what, 927

Imperfections to founts, necessity of their examination by the master printer, previous to their use, 394

Imposing, a process subsidiary to composition, explained, 411, 412; described in detail, 533—540.—Imposing in companionships, 545

Imposing-stone, on which the above process is performed, description of, 412, 481; directions for laying, 576, 577

Imposition, schemes of the various sizes, viz. folio and common quarto, 505; broad quarto; two half-sheets quarto worked together, half-sheet quarto, sheet common octavo, 506; broad octavo, half-sheet common octavo, two quarter-sheets common octavo, two half-sheets common octavo worked together, octavo with two signatures, 507; octavo, Hebrew work, twelves, twelves without cutting, 508; long twelves, half-sheet twelves without cutting, common half-sheet twelves, 509; half-sheet twelves with two signatures, third of sheet of twelves with two signatures, 510; two half-sheets twelves worked together, sixteens with one signature, 511; half-sheet sixteens, eighteens with one signature, 512; eighteens with two, and with three signatures, 513; eighteens to be folded together, and as sheet and half twelves, 514; half-sheet eighteens, ditto without transposition, 515; sixteen pages to half-sheet eighteens, twenties, 516; twenty-fours with two signatures, 517; half-sheet twenty-fours, ditto the sixteens way, quarter-sheet of twenty-fours, 518; half-sheet twenty-fours with two signatures, half-sheet twenty-fours without cutting, 519; half-sheet long twenty-fours, half-sheet thirty-twos, 520; sheet of thirty-twos, 521; thirty-twos with four signatures, 522; half-sheet thirty-twos with two signatures, common half-sheet thirty-twos, 523; half-sheet thirty-sixes, ditto with two signatures, 524; thirty-sixes without cutting, forties, 525; forty-eights with two signatures, quarter-sheet ditto with two signatures, 526; half-sheet forty-eights three signatures, quarter-sheet sixty-fours, 527; quarter-sheet forty-eights without cutting, common quarter-sheet forty-eights, common quarter-sheet sixty-fours, 528; half-sheet sixty-fours, 529; half-sheet seventy-twos with three signatures, 530; half-sheet ninety-sixes with six signatures; half-sheet hundred and twenty-eights; charges for imposition, 782; value of matter depending on the mode of, 783

Imprint, used to indicate the length of page, in jobs, 783

Index-matter, extra charge on the composition of, 783

Ink, one of the necessaries for press-work, 414; various in quality and price, *ib.*; directions for rubbing out, 588 [*see* Colours]; general observations on the manufacture of, 715; Mr. Blackwell, the first improver of the article, *ib.* 717, and Messrs. Martin and Co. the best manufacturers at present, 716, 721; the necessary ingredients of good ink, 717; Baskerville the first discoverer of these, *ib.* 718; impediments to its general adoption, 718; Mr. Bulmer's improved manufacture, as still evident in some particular works of his printing, *ib.* 719; present complete success of Mr. Martin, 721; distinctive qualities of good ink, 722; composition of Baskerville's ink, 723, and probably of Bulmer's; recipes from Rees's Cyclopædia, 71, 72 *n.*; other directions from the French, 722 *n.*—731 *n.*; Mr. Savage's mode, 720; observations—address to the workmen on the application of the ink, 731—733; ink-makers of the day, 733

Ink for lithography, composition and application of, 894—896

Ink for transfers in lithography, composition of, 905

Ink-block, engraving and description of, 573

Inking apparatus, general observations on, 622—636; the principle (except the composition) known to earl Stanhope, and even to Papillon, 622; obstacles to the plan arising from ignorance in that respect, *ib.*; accidental discovery of the indispensable material, 623; its first application to printing, by Mr. Foster, *ib.*; extension of, by Messrs. Applegath and Cowper, *ib.*; general directions for making the rollers and balls, with the author's own mode, elucidated by engravings, 624—630; competition for the honour of the application, 630; vast advantages resulting from its adoption, *ib.*; the changes made by its introduction in the relative value of labour at press. Description of Applegath and Cowper's apparatus, 631, 632; Mr. Foster's, 663, 634; improvement in, 634, 635; Mr. Parkin's inking machine, 636; Ruthven's, 682

Insertion, explanation of the term, 927

Interrogation, note of, its power in a sentence, 436

Irish type [*see* Matrices]

Italic type, invented by Aldus Manutius, at Venice, 371; the idea taken from Petrarch's writing, 372; executed by Francisco de Bologna, and called Aldine, *ib.*; the use of, secured by patents to the inventor, *ib.*; its original application to the extraneous parts of a work, *ib.*, and present limited use, *ib.*; reasons for this, *ib.* 373; peculiar delicacy of the character when well cut, 374

Jackson, an eminent modern founder, brief notice of, and estimate of his productions, 356—359; his Alexandrian Greek now in the possession of Fry and Son, 402

James, Thomas, type-founder, and first practiser of stereotype, brief notice of, 345, 346

James, John, son of the above, "the last of the Old English Letter Founders," possessed several of the punches of Wynkyn de Worde, 332 *n.*, 333; list of the various foundries collected into his concern, 346

Jobs, charge for, in composition, 783

Jones, an early English printer, his device, 922

INDEX.

Jugge, an early English printer, his device, *op.* 921

Junius, Mr., his foundry given to the University of Oxford, 344

Justifiers (quotation spaces), uses of, 446

Justifying, part of the process of composition, explained, 410; a criterion of a good workman, *ib.*

"Keep in," *and* "Keep out," explanation of the cautionary phrases, 927

Kern of a letter, what, *ib.*

Knib of a setting-rule explained, 409

"Knight of the Toure," executed by Caxton with metal-types, 337

König, M., inventor of the steam-printing machine, 694

Laying cases, preparatory to composition, 489

Laying down, preparatory to imposing, explanation of the process, 411, 535

Laying down a gathering, 769

Laying up the forme for imposition, cautions and directions on the practice, 492

Leads, or metal space-lines, their importance in composition, 447; their variety in thickness and length, *ib.*; their powers of combination sagaciously pointed out by the early founders, 448; early and frequent use of milled lead for economy and expedition, *ib.*; the serious impediments and objections against their use obviated by a machine of the author's invention [*see* Machine]

Lean-face letter, meaning of the distinction, 927

Letter-boards [*see* Boards]

"Letter hangs," meaning of the phrase, 927

Lighting an office, best mode of, 813, 814

Lithography, or polyautographic printing, detail of the process, with observations, 888—918; its invention by a German actor, 888, and assignment by him to M. André, *ib.*; its successful cultivation by the inventor, under the patronage of Mr. Ackermann, *ib.*; Mr. Hullmandel's practice in the art, and treatise on the subject, *ib.*; his re-publication of M. Raucourt's book, *ib.*; difficulty of executing the printing part of the process, 889; description of the process—1st, of the drawing, *ib.*; 2nd, of the printing, *ib.*; M. Senefelder's account of the accidental invention and maturing of the art, 890—893; the different materials separately considered; as, the stone, 893, 894; the ink, 894, 895; the pens, 896, the general process, *ib.*; various difficulties and disadvantages in the preparation and in the process pointed out, *ib.*—899, 906; the inventor's [proposal to transfer the newly-printed sheets of letter-press to the lithographic press, 896; the inking, with description of the colour cylinders, 897; the paper, and mode of treating it in working, 898; the presses—scraper and cylinder, severally described, 899—903; some improvements suggested, 903, 904; some attempted ones by Messrs. Ruthven and Colby, 904; principal advantages of the system by the "transfer and tracing manner," *ib.* 905; found eminently serviceable in our own army, and war offices, 905; composition of the chemical ink for the purpose of transfer, *ib.*; its best application in drawings to those of chalk, 906, 907; specimens of mezzo-tinto executed on stone may compete with those of copper, 907; and exceed the common engraving on wood, 908; directions for engraving on stone, *ib.*; inadaptability of the system to typographic establishments, *ib.* 909; contrast of expense in the most ordinary work, 909; slight effect of its introduction on copper-plate printing, 910

Livermore, present partner with Mr. Caslon in type-founding, 353

Locking-up, a process in imposing, correcting, &c. 412, 539, 540; accuracy in, peculiarly requisite in composition for stereotyping, 847

Long Primer, a type of Caxton's, 334; its place in the classification of type, 378; specimen of its size, containing observations on its foreign names, 381; its proportionate price, formerly in composition, 779

"Long pull," at press, the phrase explained, 928

Low case, meaning of the term, *ib.*

Lower case, engraved view of, 407, 408

Lower case sorts, what, 426, 432

Luchtman, S. and J., booksellers of Leyden, have still in their possession the formes of a Bible, fused into plates by Van der Mey, 817, 818

Lye, *and*

Lye-brush, *see*

Lye-trough, engraving and description of, with directions for its use, 594—596

Lynn, an early English printer, his device, 922

Machines for printing (press work), history of, 689—714; Mr. Nicholson's, the original patentee, 690, 691; description of the general machine, with engraving, 692—694; Mr. König, the inventor of steam-printing machines, 694; history and description of Mr. Bensley's machine, by König, worked by steam, *ib.*—698; Applegath and Cowper's, by Dryden, 697, and *n.*; Mr. Rutt's, by Napier, by hand, 698, 699; Mr. Brightley's, by Donkin, on the same principle, 699; Mr. Bacon's type revolving machine, *ib.*; Winch's "Patent for certain improvements in machines, 701, 702; Cooper and Millar's, 702, 703; Mr. Bold's project, 704; sir William Congreve's machine, 705—708; Mr. Parkin's, 708, 709, and Messrs. Spottiswoode's, 709; the author's hand machine, by Napier (Nay-peer), 710—713; others by the same hand, 713, 714; inadequacy of machines to supersede ordinary press-work, 714

Machine for cutting brass-rule, leads, cards, &c., invented by the author, detailed description of, 449, 450; immense saving in expense by its use, 451; simple mode of using it, *ib.* 452

Mackle, a term used at press, its explanation, 928

Macklin's Bible, a splendid specimen of the types of the late Mr. Jackson, and of Mr. Figgins, 358, 359

Madras, fount of Malabaric, cut for the College of, by Fry and Son, 403

Making even, sometimes necessary in composition, 413

Making the measure, a preparatory process in composition, 409

Making margin [*see* Measure]

Making ready, at press [*see* Forme]

Making up furniture *and* letter, in companionship, 545

Making up the waste [*see* Waste]

Malabaric type [*see* Matrices]

Malayan type [*see* Matrices]

Mallet, its use in imposing, &c. 412

Manuscript copy, direction for casting off, 462—466; distinct charge for, first proposed by the author, rejected, but ultimately adopted by the trade, 785

Margin, making, for imposition, 536—539; charge allowed for alteration of, 782

Martin, William, of Birmingham, a type-founder, patronized by Mr. Bulmer, 360; estimate of his productions, *ib.* 361; Greek founts cut by him, now in the Caslon foundry, 399, 402

Martin, Robert, of Birmingham, ink-maker to Mr. Bulmer, 718; his excellence in the manufacture of that article, *ib.*

INDEX.

Martin, Thomas, nephew of the above, his present decided superiority in the manufacture of ink, 720, 721

Master printers' charges [*see* Prices]

Mathematical, algebraical, and geometrical sorts, 452, 453; cautions against the attempt to substitute for, 452; the disadvantage to compositor on these works, perfectly remediable, 453

Matrices, synopsis of those in British letter foundries, for languages requiring peculiar characters, 399—401; viz. Arabic, Armenian, Coptic, Domesday, Engrossing, Ethiopic, Etruscan, German, German Text ornamented, Greek, Alexandrian, Gothic, 399; Hebrew, *ib.* 400; Rabbinical Hebrew, Hibernian or Irish, Malabaric, Persian or Talik, Philosophical (Dr. Wilkins's), Runic, Russian, Russian Ancient or Sclavonian, Russian cursive (the common Russ), Samaritan, Sanskrit, Sanskritta, Nagari or Bramin, Saxon, Sclavonian or Russian, 400; Swedish, Syriac, Télégé, Turkish, 401. For music, and do. pleine chant de quatre points, *ib.* For Blacks, *ib.*; with explanatory remarks on all the foregoing, 401—404

Matter, meaning of the term, 928

Matthewson, an incipient type-founder at Edinburgh, 366

Measure, explanation of the term, 928

Medhurst's press, description of, 652

Medicinal signs, 455

Metal rules, directions for their use, 442, 443

Middleton, an early English printer, his device, *op.* 922

Millar [*see* Cooper]

Miller, of Edinburgh, type-founder, most of his founts cut by Mr. Austin, 361

Minion type, its place in the classification of types, 378; specimen of, with observation, 382; formerly termed an irregular size, 383; its inferiority to Brevier, to which it mostly gives place, except on newspapers, 384

Mitchell, a type-founder, about A. D. 1700, 344, 345

Mixing colours for ink [*see* Colours]

Mixing-pot, or shaking-tool, an implement used in stereotyping, 856

Molasses, an ingredient in the *compo* for rollers, 624

Monograms and devices of early English printers, some specimens of, from Mr. Horne's Bibliography, with descriptions of, 921, 922

Monk, at press, what, 928

Monthly Magazine, observations in, on the comparative advantages of stereotype printing, 825

Mores, Rev. Edward Rowe, copious extracts from his "Dissertation upon English Typographical Founders," 332 *et seq.*; brief notice of his life, 332 *n.*; Rev. Messrs. Dibdin's and Horne's remarks on the peculiarities of his work, 333

Morning work, charge for, by compositors, 783; by pressmen, 789

Moveable type printing, its distinct meaning, 405

Moulding, in stereotyping, description of the process of, 853, 854

Moxon, Mr. Joseph, a celebrated letter-cutter, and an author on typography, brief notice of, 339—341; the various improvements made by him in his peculiar branch of the art, 341; account of his foundry included in that of Robert Andrews, 343, 344; his rules for the proportions of Roman type, 368, and for those of his component metals, 371; his original distinction of some parts of the press, 417

Music type [*see* Matrices]; charge for, by compositor, 783

"Myrrour of the World," a book executed by Caxton, concluded to have been done with metal types, 336

ñ (Spanish), its power and use, 428

Nagari types [*see* Matrices]

Naked forme, what, 928

Names of type in different countries in Europe, 378

Napier, Mr., inventor of a press rejected by the Society of Arts, 657, 658; of Mr. Rutt's steam-printing machine, 698, 699; the author's machine, 710; and several others, 713

Nelson's Fasts and Festivals, instanced as a work which has materially gained in appearance and correctness by its numerous editions, 843

Nicholas, one of the four exclusive founders appointed by Star-chamber, 338

Nichols, a founder in 1690, 342

Nichols, Mr., purchaser and publisher of Mr. James's, afterwards Mr. Mores's collection of early types, 332 *n.*; his notes on the original work indispensable, 347; his "Memoirs of Ged," containing an account of that printer and inventor very different from that of Rev. Mr. Rowe Mores, appended to the book, 821

Nicks of letters, use and importance of, 371

Night-work, charge for, by compositor, 783

Ninety-sixes size, scheme for imposing, 531

Nonpareil type, its place in the classification of types, 378; specimen of, with remarks on its name and origin, 382; and general utility, 384

Notary, an early English printer, his device, *op.* 921

Notes at the foot of pages, or (bottom-notes) directions for making up, 497, 498; charges for, 782; other matter included in the distinction, *ib.*

Notes at the sides of pages (side-notes), charges for, 782

Numeral letters, their value, 429; sometimes supplied with small capitals, and even with lower-case, *ib.*

Nut of a Stanhope press, 640, 641

Nut-bolt of the press, description and engraving of, 557

Octavo, schemes for imposing the various kinds of, 506—508

Odd page, the distinction explained, 928

Off, at press, explanation of the term, 928

Oldham, Mr. John, his new and scientific mode of wetting paper, 598, 599

Oven, a requisite in stereotyping for baking the moulds, 860, 861

Overrunning, a part of the operation of correcting, mode of, 413

Overseer of an office, his duties, &c. 734—740; in constant attendance, 734; general inspection, 735; keeping the registers of business, *ib.*; regulating companionships, 736; occasional reading for press, *ib.*; revising for press, *ib.*; inspecting the presses, 737; and warehouse-work, 737, 738; and for enforcing several specified regulations, 738—740

Ouseley, sir William, Persian type cut by Figgins under his direction, 403

"Out," *and* "Out of register," meaning of the terms, 928

Oxford University, early foundry at, the matrices given by bishop Fell and Mr. Junius, in 1667 and 1677—specimens of these published by the University alleged to be discreditably incorrect, 344, 345; specification of their founts in foreign cha-

racters, 399, 401; observations on, 403; their abandonment of stereotype, after the great expenses of its establishment, a proof of its general inapplicability, 844

Page-cord, technical name of sealing twine, its use in composition, 411, 486

Pale colour, at press, explanation of, 928

Pallet knife, an implement of great use in stereotyping, 857

Pamphlet, specific charge for the composition of, 782

Paper, one of the necessaries in press-work, 414; directions for wetting, including a new scientific method, 596—600; giving out for the press, 763; hanging up, 767; observations by Mr. Farraday, 916; and by the author on the superiority of India paper for copper plates and wood cuts, 916, 918

Paper-hangings, from blocks *en suite*, executed on the same principle as that adopted for decorative printing, 912 *n.*

Papillon, probably the originator of the plan of inking by cylinders, 623; and probably the revivor of decorative printing, practised in this country by Mr. Savage, 912; his opinion on the plan adopted by the early printers, to take impressions of their ornamental types, 912, 913

Paragon type, its place in the classification of types, 378; size, 379; origin of its name, 380; formerly deemed an irregular size, 383

Paragraph, its comparative disuse as a mark of reference, 432

Parallel, mark of reference, 432

Parchment-balls, adequate in some cases to the working of colours, 603

Parenthesis and crotchet, the purpose of, 439; growing into disuse, 439

Parkin, Mr., inventor and patentee of a printing machine, 708, 709

Parliamentary work, charged in composition distinctly from ordinary work, 784

Pearl type, its place in the classification of type, 378; specimen of, containing remarks on its relative value, 382; its principal utility, 384

Pelts, what, 928

Pelt-balls [*see* Balls]

Perkins, detailed description of his stove, peculiarly adapted for warming and ventilating printing offices, 810

Persian or Malik types [*see* Matrices]

Persic types [*see* Matrices]

Petit, an early English printer, his device, *op.* 921

Philosophical types [*see* Matrices]

Pica type, its place in the classification of types, 358; specimen of the size, containing conjectures on the origin of its foreign names, 380, 381; considered the measure of nonpareil, 382; and of all sizes above French canon, 383; as well as the standard measure of most typographical materials, and why, 384

Picks, what, 928

Picture of London, instanced, as a work advantageous to stereotype, 844

Pie, in composition, what, 928

Pingeron, M., composition used by him as the material for his stereotype moulds, 873

Piston [*see* Screw]

Pitt, the celebrated Mr., reviver of the Star-chamber decree of typographical restriction, 339

Planer, an implement used in imposing, 412, 486

Planing-down, a part in the process of imposing, 412

Plank of the press [*see* Coffin]

Platten of the common press, description and engraving of, 561, 562; directions for hanging it, 577, 578; of a Stanhope, 643; of a Stanhope common press, 649

Point-screws [*see* Points]

Points, in grammar, general observations on, as regards correctness and uniformity in printing, 433—437

Points and point-screws of the press, description and engraving of, 571; an extra pair used in printing colours, 602; sometimes even four, of a peculiar kind (paste-points), in decorative printing, 912

Point-holes explained, 928

Polyautographic printing [*see* Lithography]

Polyglott (Dr. Walton's), matrices cut for the Syriac type of, now in Mr. Caslon's foundry, 401, 402; Ethiopic Samaritan, in Messrs. Fry's, 402. (Bagster's) Syriac, by Fry, 403; Hebrew by Figgins, the smallest with points in England, *ib.*

Polyglott founders, a title given to the persons to whom the art of printing was exclusively confined by decree of Star-chamber, and subsequent enactments, 338, 339

Porson, Professor, fount of Greek cut from his MS. by Fry and Son, 402

Porterat, M., his plan of stereotyping by adding a face of the type *en creux* at the other end, 879

Posts (hind) and rails of the press, description and engraving of, 554, 555

Pouchee and Jennings, type founders, 361

Press, the machine described, 414; with several of its component parts, 414—420; the Apollo press, Mr. Roworth's improvement, 421; earl Stanhope's press, 421—425; total and unaccountable omission of it in a Printer's Grammar, 549 *n.*; its adequacy to produce the best printing, *ib.*; alteration in the designation of some of its parts, 550; first improvement in the *common-press*, by William Jansen Blaew, *ib.*; the figure of which formerly constituted a fashionable frontispiece to books, *ib.*; names of the several parts of a common press, 551; each described in detail, with wood-engravings — the feet, 552; cheeks, 553; hind posts and rails, 554; cap, 555; winter and head, 556; nut-bolt, 557; head-bolt, *ib.*; till, 558; hose, garter, and hose-hooks, 558, 559; spindle, 559; bar, handle, and catch, 560, 561; platten, 561, 562; carriage and ribs, 562, 563; the fore-stay, 564; spit and wheel, 565, 566; coffin, plank, and cramps, 566, 567; gallows and sockets, 568; press-stone, 568, 569; tympans, inner and outer, 569, 570; points and point-screws, 571; frisket, 571, 572; ball-stocks and ball-racks, 572; ink-block, 573; brayer and slice, 574; bank and horse, *ib.*; directions for putting up, &c. [*see* Press-work]. *Improved* Manual Presses, consideration of, 637—638; the Stanhope press, probably indebted for its principle to M. Anisson's, 638; their exorbitant price inducing the successful competition of Messrs. Fowler and Co., *ib.*; description of its various parts, with engravings and explanations, viz. bar-handle, arbor, and coupling-bar, 639; screw, 640; nut, *ib.*; nut and piston, 641, 642; platten, 643; fork and hook, 644; gallows, 645; principal differences in the structure of the two presses, 646; application of the Stanhopean principle to the common press, 647; with enlarged drawings of the principal adaptations—bar-handle and lever, 648; platten, 649; description of Mr. Ruthven's press, 650; Medhurst's, 652; Ridley's, 652, 653; notice of Mr. Prosser's, 653, and Mr. Brown's invention, *ib.*; De Heine's, now Cogger's, 653—655; the Columbian, 655, 656; Stafford's, 657; Napier's, 657, 658; Treadwell's, 659—661; Watts's, 662, 663; Barclay's, 663; Hope's, 663, 664; Church's

machines, 665—668, 674—677; Wilson's inking press, 680—682; Ruthven's, 682, 683; Cope's Albion press, 683; Taylor's Russel press, 683. [*See* Tympans]. Comparative expense of presses in present and in former times, 796

Press-men, rules for their observance, 740; form of their account-book, 757

Press-room, best relative situation for, 806

Press-stone, directions for providing, 568, 569

Press-work of Caxton's time fully equal to any of the present day, 337; the operation of, second great division in the art of printing, summarily explained, including a description of the machine, 414—420; [and *see* Press]; gradual improvement in, since the time of Baskerville, 549; directions relative to the process, under the heads of, putting up a press, 575; laying the stone, 576; setting the rounce, 577; hanging the platten, 577, 578; justifying the head, 578, 579; covering the tympans, 579, 580; the blankets, 580, 581; making ready, 581—588; rubbing out ink, 588; beating or rolling, 588, 589; working, including pulling, 590; turning the heap, 593; making register, *ib.*; the lye-trough, 594—596; wetting paper, 596—600; making pelt-balls, 600, 601; printing other colours with black, 601—603; mixing and grinding colour with varnish, 603, 604; proofs, 604, 605; working, 605—608; table for reckoning work by tokens and hours, 608 [*see* Fine Printing, Inking Apparatus, Improved Manual Presses]; necessity of constant inspection by the overseer, 737; form of the account-book for, 757; prices of work, 788, 789; observations on, with proposed modification, 789—791; abstract of common scale, 791; particular mode of adjusting stereotype-plates for working, 885—887

Presses for lithography described, 899—904; some late improvements in by Ruthven, and Colby of Shacklewell, *ib.*

"Press goes," meaning of the phrase, 928

Prices of workmen, general principles, 778, 779
Compositors, 779—789; difference originally in the charges for the various sizes of type, 779; first scale fixed in 1765, *ib.*; general price previously, *ib.*; inclusion of heads, &c. in casting up, in 1793, *ib.* [and *see* 786]; differences in sizes above English made in 1795, 780; advance in 1800, *ib.*; general adjustment of the scale, without fresh advance in 1805, *ib.*; alteration in 1810, as to leaded works, *ib.*; and in 1816, as to MSS. *ib.*; present scale for compositors' work, *ib.*, 782, 783; scale of the various advances since 1785, 781; abstract of the scale in use, 784; several distinct specifications for peculiar work, *ib.*; the author's original propositions respecting the classification of works, 785; their rejection by the trade, and the author's secession in consequence, *ib.*; their subsequent general adoption, *ib.*; his proposed distinctions as to leaded and solid matter, *ib.*; unreasonableness of charge for *m* or *n* quadrats to suit the leads, 786; scale of the author's prices for compositors' work, 786, 787; utility and plan of compositors' private check, 787
Prices for pressmen, 788—791; scale of 1810 and 1816, 788, 789; observations on the inequality of, proposed modification in, 791; brief analysis of the present scale, *ib.*
Charge of the master to his employer, 791—800; inadequacy of Mr. Stower's "Printer's Price-book" to the object proposed by it, 792; secresy on the subject hitherto observed, *ib.*; and consequent mischief, *ib.*; the present principle developed, 793, *et seq.*; charges on composition and reading, 793; on corrections, *ib.*; table work, *ib.*; or works with peculiar sorts, 794; large set-offs against these profits, in the various out-goings, *ib.*; and small ultimate compensation for capital, time, and skill, as to composition work; advantages in these respects in earlier times, *ib.*; great present disproportion of expense and of returns, 795; mode of charge on press-work, 795, 796; great increase of charge for very superior work, *ib.*; manifest disproportion betwixt the present expense and recompense, and those of earlier times, 796; Mr. Luke Hansard's estimate of profit and loss on printing an 8vo volume, 797; charges on parliamentary work, 798; charges on warehouse work, for hot and cold pressing, 800
Comparison of prices for typographic and stereotype work, 838—844; for lithographic work, 909

Prima, in the business of a reader, explained, 751; scale of, 923

Printers and booksellers [*see* Abstract of Acts]

Printer's devil, explanation of the term, 98; humorous ode to one, 298—290

Printing, considered in relation to type-founding, 332, *et seq.* [*see* Type-founding, Types]; restrictions on, by the Star-chamber decree, 338; renewed by act of parliament, revived in 1685, and discontinued in 1693, 339
General apparatus, and process of the art through its various stages, divided into Composition, or Case, and Press work, which *see*

Printing-ink [*see* Ink]

Printing machines [*see* Machines]

Printing-office, observations on the construction of a, 805—814; eligible relative situations of the warehouse and foundry, 805; dry store-room, and press-room, 806; general plans laid down for an office at the Cambridge University, 806; and for the author's own office, *ib. et seq.*; dimensions, *ib.*; drying-room, 807; reading-rooms, 808; wetting-room, 809; method of heating and ventilating, with engraving of Perkins's stove, 810—813; best mode of lighting, 813, 814

Proofs, their use, &c. 540, 604

Proof-registry, recommendation and specimen of, 735, 736

Prosser, Mr., patentee of a press of little novelty, 653

Prussian blue, ground with varnish to make blue ink, 604; [and *see* Colours]

Pulling, or working at press, the operation described, with particular directions to pressmen, 590—594

Punch-cutting, an operation in type-founding, great improvement visible in, by comparison of Caxton's types with those of his successor, 336; established as a separate branch by a decree of Star-chamber, 338

Purfoot, an early English printer, his device, 922

"Pylgrimage of the Sowle, the," one of Caxton's early typographical productions, 335; correct facsimile of the type of, *ib.*; supposed by Mr. Dibdin to have suggested the idea of the Pilgrim's Progress, *ib.*

Pynson, Richard, his character as a typographer, 337; his device, *op.* 921

Quadrats, in composition, the uses of, 440, 441; necessity of their exact mechanical truth, 441; reglets, improper substitutes for, *ib.*

Quarters of formes, explanation of the term, 928

Quarto, schemes for imposing various kinds of, 505, 606

Quires, imposing in, scheme of, and directions, 505

Quoins, a part of furniture, 482; their nature and use in imposition, 412; engraved view of one, 484

Quotations, in composition, great care required in casting, and in cutting furniture to their size, 446; should not be cast too high, *ib.*; require justifiers to be used with them, *ib.*

Rabbinical Hebrew type [*see* Matrices]

Raucourt, M., an author on lithography, quoted by Mr. Hullmandel, 889, 907

Rastell, an early printer, possessor of a fount of two-line great primer, 337; his device, *op.* 921

INDEX.

Reader, or corrector, the person appointed to point out the errors made in composition, 412; his business and requisite qualifications, 741—744; should be cognizant of the languages in most frequent use, and well versed in the practical knowledge of the art, 741, 742, 748—755; specification of the marks used for correcting (*pl.*) and explanation of them severally, 742, 744

Reading for press, necessity of an overseer being qualified for, 736

Reading-boy, an assistant of the reader or corrector, his business and requisite qualifications, 751

Reading-rooms, best situation and arrangement for, 808

Red, or other colours, method of printing with black, 601—603

Redman, an early printer, his two-line-great-primer fount noticed, 337; the last who used the secretary character, *ib.*

Rees's Cyclopædia, contains a calculation of the advantages of stereotype, by Mr. Brightly, of Bungay, 837

References, their uses, 431, 432; superior letters preferable as such, 432

Register-sheet explained, 928

Registry [*see* Proof-registry]

Reglets, articles of composition, 928; and "furniture," 441; their disposition in imposing, 412; improperly substituted for quadrats in white-lines, 441

Reiteration, what, 928

Reviews, Magazines, &c. specific charge for the composition of, 782

Revising, after first proof, a process not to be omitted, 752

Revising for press, the duty of an overseer, 737

Reynes, an early English printer, his device, *op.* 921

Rickaby, Mr., noticed, as the author's predecessor, and printer of Nelson's Fasts and Festivals—[and *see* Part I.]

Riding, a term in printing in various colours, 502

Rise, application of the term, 928

Rochen, a French artist, ridiculous application, or proposed application, by him, of the principle of stereotype casting, 873

Rollers, have nearly superseded the use of balls, 414

Roman type, first used at Rome, on Cicero's "Epistolæ Familiares," 368; called by the Germans, *Antiqua*, *ib.*; the type best adapted for typography, *ib.*; rules for its proportionate execution laid down by Moxon, *ib.*; and assented to by Stower, 369; but not by the author, *ib.*

Rollers, composition, for inking, attempted by lord Stanhope, 622; successful application of them by Mr. Foster, 623; and by Applegath and Cowper, *ib.*; mode of preparing them, 623, 631; their various modes of application in inking machines, 631—636

Rounce of a press, directions for setting, 577

"Royall Boke," one of Caxton's typographical productions, correct fac-simile of, 335

Rubbing out ink [*see* Ink]

Rubric type, the invention of Mr. Luke Hansard, its purpose and application, 603

Ruby type, its place in the classification of types, 378; specimen of, containing remarks on its origin, name, &c. 382

Rules, in composition, of various materials and uses, 442; [*see* Brass rules, Metal rules, Space rules]

Runic type [*see* Matrices]

"Runs on sorts," explanation of the phrase, 928

Russian types [*see* Matrices]

Ruthven, Mr., inventor of an improved press for lithography, 904

Ruthven's press, description of, with an engraving, 650, 651; self-inking apparatus for, 682, 683

Rutt, Mr., description of his printing machine, 698

ſ, the long character, with its dependant double letters, first disused by Mr. Bell, 393; the practice now generally adopted, 469; its retention in some University impressions, *ib.*; and on what probable ground, *ib.*; plan of cases on this principle, *ib.*

Samaritan types [*see* Matrices]

Sanscrit type [*see* Matrices]

Savage, Mr., revivor, in this country, of decorative printing, 911; pretensions of his style of art, 911, 912; his method of working by blocks of different shades, or colour, 912; probably taken from Papillon, *ib.*; his opinion of the mode of printed illuminations of the early style, 913; and of the merits of the first productions, *ib.*; [and *see* Decorative Printing]; his recipe for the manufacture of ink, 725, 726

Saxon type, first cut by Day in 1567, 337, 401; [and *see* Matrices]

Scale, the great importance of a perfect one in the casting of different founts, 394

Scale for compositors' work, first settled in 1785, [and *see* Prices]

Scale for Press work, 788, 789; brief analysis of, 791; scale of the author's prices for compositors, 787

Scale of measure for compositors' work, 924

Sclavonian type [*see* Matrices]

Scott, an early English printer, his device, *op.* 912

Scott's Family Bible, and Encyclopædia Metropolitana, instanced as works the very publication of which depended upon stereotyping, 837

Scotch type-founders [*see* Miller, Wilson, Matthewson]; their acknowledged superiority to the English founders, 370; attributed partly to their superior mixture of metal, and partly to their resumption of the old principle of the shaping of type, *ib.*

Scratched figures [*see* Figures]

Screw of a Stanhope press, 640

Script type, very awkward productions of the third William Caslon, and of Jackson, 374; little improvement subsequently, *ib.*; till Didot's patent invention, described, 374, 375; followed by Caslon's improvements and simplifications, 376; general objections to the use of, 375

Secretary, the name of the character in use in the time of Caxton, 334; last used by Redman, in 1534, 337

Section (the sign §), its prevalent use, 432

Semicolon, its power, 436

Senefelder, Mr. Alois, inventor of the lithographic system of printing, 888; which he assigned to M. André, *ib.*; successful patronage afforded him by Mr. Ackermann, *ib.*; his subsequent good fortune in his official appointment under his own government (Bavaria), *ib.*; his fantastic pretences to have acquired the knowledge of the typographic art in a day or two, 890; considered in connexion with his egregious blunders and ridiculous attempts to improve it, *ib.*; true praise due for the perseverance exhibited by him in the perfection of his art, 890; his very qualified claims in favour of his own invention, 890, 891; and description of his process, 891; his limited intention in the first use of engraved stone, 891, 892; and its accidental enlargement into its present objects, 892, 893

Serres, an early English printer, his device, *op.* 921

INDEX.

Set-off, meaning of the term, 928

Setting rule, an implement used in composing, 409

Seventy-twos size, scheme for imposing, 530

Shaking-tool [*see* Mixing-pot]

Shank of a letter, what, 928

Shears, necessary implements in composing, 486

Sheets, taking down, 768, 769; putting by, 769

Shooting-stick, an implement in locking-up a forme, description of, 412, 485; engraving of a peculiar one for small quoins, 486

Siberch, an early English printer, his device, *op.* 922

Side-sticks, articles of furniture, their disposition in imposition explained, 412; their material and construction as used by the author, 482; engraved representation of, 483

Signature, and signature-line, in composition, 411, 926

Silk-hangings, a set of, in the possession of the author, prove the Chinese to be the former practisers of printing from blocks *en suite*, 912 *n.*

Singleton, an early English printer, his device, *op.* 921

Sixteens size, modes of imposing in, 511, 512; extra charge for imposing, 782

Sixty-fours, schemes for imposing, 528, 529; charge for imposing, 782

Sizes of type, comparative, displayed in their respective names, 379—382

Skinner, a type-founder about 1700, 345

Slice, at press [*see* Brayer]

Slur, what, 928

Small capitals, particular care required to distinguish some of them, 427; how denoted in MS. *ib.*; their various uses, *ib.*

Small pica type, its place in the classification of types, 378; origin of its English and foreign name conjectured, in a specimen of the type as at present used, 381; formerly deemed an irregular type, 383; but now in very general use, 384

Smouting, explanation of the term, 928

Sockets of the press [*see* Gallows]

Sorts, what, 929; the care of, the province of an overseer, 737

Space-lines [*see* Leads]

Space-rules, sometimes vary in thickness, yet useful in composition, 443

Spaces, in composition, their uses, 441

Spanish, at press, probable derivation and meaning of the term, 929

Spelling-books [*see* Grammars]

Spindle of the press, description and engraving of, 559

Spit and wheel of the press, description and engraving of, 565, 566

Sponge, a necessary article to a compositor, 486

Squabble, explanation of the term, 929

Stafford, Mr., inventor of a portable iron-press, 657

Stanhope, an eminent patron of the typographic art, [*see* Press, Cases, Inking-apparatus, Stereotype]

Star-chamber, court of, their decree, regulating the number, &c., of the letter-founders and printers, 338

Stem of a letter, what, 929

Stereotype, best relative situation for the foundry in an office, 805; the art revived and brought into practice by earl Stanhope, 815; summary description of the operation, 815, 816; attempts hitherto fruitless to extend the art to the transfer of plates from copper engravings, 816; Mr. Armstrong's imagined success, 816 *n.*; observations on the origin of the invention, 816, 825; the principle coeval with the origin of printing, 816; the art itself, in its rudest method, practised, a hundred years ago, by Van der Mey, 817—819; palpable inefficiency of his plan with regard to economy, 819; the origin of the improvement contested, *ib.* 820; but, on comparison of claims, assigned to Mr. Ged of Edinburgh, 821; its ill-fortune in his hands, and from what cause, 822; specimens of his plates, 823; Mr. Tilloch's claim to the *invention* of the same process fifty-years after, *ib.*; alleged application of the art, by M. Didot, to logarithmic tables, and subsequently to various works, 824; his claim to the invention disallowed in point of time, *ib.*; and more especially from his mode of operation, which is stated to be merely that of Van der Mey, *ib.*; Mr. Wilson's engagement with earl Stanhope to complete and establish the art, *ib.*; his false and uncountenanced claim to the merit of the invention set up for lord Stanhope, *ib.*; offer of the mystery to the University of Cambridge, *ib.*; its present principal application, 825

Advantages of the art considered in detail, 825—845; erroneous statement on this head, published at an early period in the Monthly Magazine, 825, 826; answered by Mr. Wilson, 826—828; the common objections summed up by Mr. Stower, 828; observations in detail by the author, upon the statements on both sides, principally grounded on Mr. Wilson's propositions, 829 *et seq.*—1st, on the comparative expense by wear of metal, 829, 830; 2nd, on the diminution of labour in composition and reading, 830, 831; 3rd, the comparative expense of casting moveable types, and stereo plates, 831; 4th, price of press work by either method, *ib.*; 5th, comparative expense betwixt a small fire-proof room for the plates, and a large warehouse for the paper, 832; 6th, the beauty, in appearance, of the different modes of work separately considered, *ib.*; 7th, comparative accuracy of the two modes, 833—835, 8th, the comparative turn of work which each sort of type will bear, 835; 9th, the supposed advantages of re-casting from stereotype plates, 836, 837; 10th, comparison of savings upon the whole, as stated in Mr. Hodgson's "Essay," 839—842; additional observations on the ineligibility of machinery for working stereo, and on the sometimes improved appearance of a work, from its frequent re-composition for successive editions, 832—834; a great qualification in the estimation of the art, evident in its partial abandonment by the Universities; balanced statement of the real advantages, and best application of the invention, 844, 845

Process of the art described in detail, 846—857; peculiar form of several of the types, 846; peculiar size of chases, 847, and mode of imposition, *ib.*; increased attention requisite in the ordinary preparations for press, *ib.*; instructions for the process from the MSS. of earl Stanhope, with observations by the author, on the imposing furniture, *ib.*; the gypsum, *ib.*; precautions to avoid damp, 851, 852; to clear the moulding-table, 852; oiling the type, 852, 853; fixing the frames, 853—855; mixing the gypsum, 855; use of the shaking-tool, or mixing-pot, 856; discontinuous pouring of the gypsum, *ib.*; dabbing, *ib.* 857; cleaning of the mixing-pot and dabbing-brush, 857; use of the pallet-knife, *ib.*, and of the straight-edge, *ib.*; time for the setting of the gypsum, 857, 858; some later improvements pointed out, 858; separation, 859; dressing, *ib.*, and baking of the mould, 860, 861; melting the metal, 861; process of casting, including a precise description of the casting pot and other tools, *ib.* —866; picking, 867; turning and dressing, *ib.*; making the metal, 868; method of avoiding the general unhealthiness of the process, 869; preferableness of purchasing the various articles ready prepared, 870; view of the interior of a stereotype foundry, 871; various other methods of practising the art, more particularly by the French, 872, 879; first attempt by Hoffman, with description of the material of his mould, 872, 873; M. Pingeron's material, 873; frivolous application of

the art by Rochen, 873; substantial improvements by Carez, described, 874; Hoffman's ridiculous attempt to save the time of pre-composition, 875; description of the French mode of stereotyping for the prevention of forgery, 876, 877; another mode, by M. Herhan, by forming a mould with cold metal, 877; a second method of his by casting from types, *en creux*, 878; one by M. Porterat, by types, with a face at either end, one in *relief*, the other *en creux*, 879; Mr. Applegath's method, by a metallic mould taken while semi-fluid, and a semi-fluid plate struck from such mould, *ib.* 880; its claims to originality examined, 880; latest English invention, applicable to newspapers, described in detail, 880—883; many points of resemblance betwixt this mode, and that invented by Hoffman,

Working the plates, 884—887; blocks, and mode of fixing, as practised by earl Stanhope, 884; other modes in use, 885; their general inefficiency, *ib.*; the author's patent invention to remedy this defect, described, 885, 886; directions for its use, 886, 887; recent invention by Mr. Fergusson to employ elastic substance, 887; specimen of an illuminated letter, the various parts of which are composed of stereotype, 913

Stereotype-plate raisers, an invention of the author's, described, 885, 886; directions for their use, 886, 887

Stick [*see* Composing-stick]

Stick-full, a term in composition, explained, 411

Stock, the accumulation of, in quire-books, evinced in the case of Sweynheim and Pannutez

Stone [*see* Imposing-stone]

Stone, proper for lithography, description of, and directions for preparing, 893, 894, 897

Stove for an office [*see* Perkins]

Stower, his proposed plan for casting up work, 461; inefficiency of, 462; inadequacy of his "Printer's Price-book," to the object proposed, 792; his statement of objections to the adoption of stereotype printing, 828, 829

Straight-edge, the name given to a tool used in stereotyping, for giving a flat back to the mould, 857

Sunday-work, charge for, by compositors, 783, and pressmen, 789

Superior letters, or figures of reference, their use, 929; preferable to the old marks, 432; and the Italic to the Roman, *ib.*; directions for their use, *ib.*

Swedish type [*see* Matrices]

Sweynheim and Pannutez, the first printers at Rome, inventors of the Roman type, 367, 368; their subsequent distresses, 368 *n.*

Swinton, Rev. Mr., a celebrated linguist, Etruscan types executed for him by Caslon, still in the Caslon foundry, 401 *n.*

Syriac [*see* Matrices]

Tabular; *and*

Table work, definitions and prices of, 784

Taking down the sheets, 768, 769

Tamoul type [*see* Matrices]

Taylor, associated with Mr. Bensley to perfect the steam-printing machine, 695

Technical terms used in printing, list of, with explanations, 929

Télegú type [*see* Matrices]

Terms (technical) [*see* Technical terms]

Thin space, the distinction explained, 929

Thirty-sixes size, various modes of imposing in, 524, 525

Thirty-twos size, various modes of imposing in, 520—523; charge for imposing, 782

Thorne, a late founder, principally eminent for his bold job type, 360

Thorowgood, type-founder, successor to Mr. Thorne, 360; specification of his founts in foreign characters (in list of matrices), 399, 401; observation on those of the German and Russian, 403

Til (the mark ˜), its use in Portuguese words, 428

Till of the press, description and engraving of, 558

Tilloch, Mr., editor of the Philosophical Magazine, his remarks in that work, on the first idea of stereotyping, by Van der Mey, 817; his erroneous ideas on the immaculateness of stereotyped works, 820, 821; his own claim to the unassisted rediscovery of the art, rendered suspicious by the actual publication of the process many years previous, by Mr. R. Mores, 822, and 823 *n.*; assisted in perfecting the invention by the well known Mr. Foulis, of Glasgow, 823; the practice of the art suspended by Mr. T., from circumstances foreign to the invention, 824, but resumed by him for the instruction of lord Stanhope, *ib.*

Times Newspaper, first application of steam-printing made to the, under the patronage of Mr. Walters, 695

Title-deeds, mode of imposing the abstract of, 505

Tottel, an early English printer, his device, 922

Transfer and tracing in lithography [*see* Lithography]

Transposition of pages in a companionship, 547

Treadwell's press, description and engraving of, 659—661

Turkish type [*see* Matrices]

"Turn for a letter," meaning of the phrase, 929

Two-line letters, their great use, 447

Two-line Double Pica type, its place in the classification of types, 378; size, 379

Two-line English, its place in the classification of types, 378; size, 379

Two-line Great Primer type, in use among the early printers, 337; its place in the classification of types, 378; size, 379

Two-line Pica, its place in the classification of types, 378; size, 379

Twelves;—

Twenties; *and*

Twenty-fours, schemes for imposing, 517—520; extra charge for imposing, 782

Tying up the page for imposing, directions for, 533

Tympans, descriptions and engravings of—outer, 559, 560; inner, 560; description of the patent tympans, applicable to presses of enlarged dimensions, invented by the author, 683—688

Type-founding. Early history of the art gathered from Rev. E. R. Mores's "Dissertation," 332 *et seq.*; the art formerly included in that of the printer, 334; specification of the types originally in use in this country, by Caxton, 334, 335; very imperfectly represented by impressions from plates, 335; separation of this branch from the practice of typography, 338, and division of the art into cutting, casting, and dressing, *ib.*; number of founders limited to four, *ib.*; their names, *ib.*; the restriction renewed by Act of Parliament, 339; improvements in letter-cutting, by Moxon, 339—341; account of the foundry at Oxford, given to the University by Fell and Junius, 342; in London, under Nichols, in 1690, and the Grovers and Goring, living in 1724; and progressively under Andrews, Skinner, Head, Mitchell, Thomas James, 345; the Westons, Ilive, and John James, "the last of the old English founders," to Rev. E. Rowe Mores, the purchaser of the founts accumulated by the latter, 346, 347

Low state of type-founding in the beginning